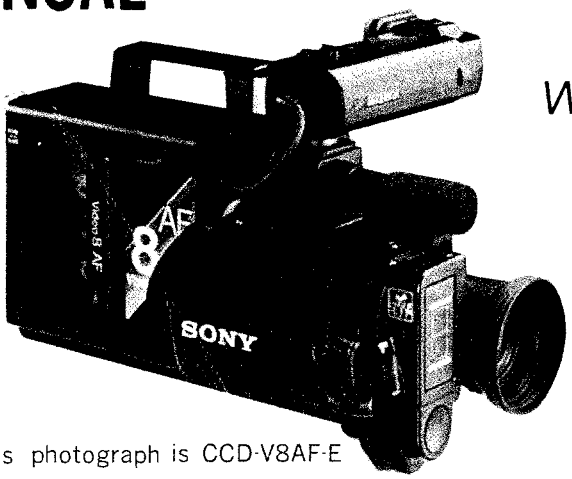
CCD-V8AF-E/V7AF-E

SERVICE MANUAL

AEP Model
UK Model
West Germany Model



This photograph is CCD-V8AF-E

AF
Auto Focus
Video 8

SPECIFICATIONS

This manual contains the SUPPLEMENT-1–2.

System

Video recording system	Rotary two heads, Helical scanning FM system
Audio recording system	Rotary head, FM system
Video signal	PAL colour, CCIR standards
Usable cassette	8mm video format cassette
Tape speed	SP: Approx. 20.051 mm/sec. LP: Approx. 10.058 mm/sec.
Recording or playback time	SP: 90 min. (P5–90) LP: 180 min. (P5–90)
Fast forward time	Approx. 3 min.
Image device	CCD (Charge Coupled Device)
Viewfinder	Electric viewfinder VF-206/208 (1" black and white)
Lens	Combined 6 × power zoom lens f = 12–72 mm, F1.4 Filter diameter: 52 mm
Auto focus system	Infrared auto-focus
Colour temperature	Preset values: ☼ 5,800°K 💡 3,200°K Auto: From the light at a tungsten lamp to the light on a slightly overcast day.
Minimum illumination	22 lux (F1.4) (2 footcandles)
Illumination range	22 lux–100,000 lux (2–9,294 footcandles)
Recommended illumination	More than 300 lux (28 footcandles)
Aperture correction	Approx. ±1.5

Input and output connector

MULTI CONNECTOR 24-pin	Video input: 1 Vp-p, 75 ohms unbalanced, sync negative Video output: 1 Vp-p, 75 ohms unbalanced, sync negative Audio input: −6 dBs, input impedance more than 47 kilohms Audio output: −6 dBs, output impedance less than 1 kilohms
Earpiece jack	Minijack, 8-ohm impedance
Remote jack	5-pin connector
MIC jack	Minijack, −60 dBs, low impedance

General

Power requirements	MULTI connector 8.5 V Battery holder 6 V/8.5 V
Power consumption	7.7W (camera recording) including the viewfinder
Installation	Horizontally, vertically
Operating temperature	0°C to 40°C (32°F to 104°F)
Storage temperature	−20°C to +60°C (−4°F to +140°F)
Dimensions	Approx. 126 × 191 × 350 mm (w/h/d) (5 × 7 5/8 × 13 7/8 in.)

— Continued on next page —

8 VIDEO CAMERA RECORDER

SONY®

Weight	Approx. 2.3 kg (5 lb 1 oz) excluding the battery and cassette Approx. 2.63 kg (5 lb 13 oz) including the battery and cassette
Microphone	Electret condenser microphone, uni-directional monaural type

Accessories supplied

Shoulder strap (1)
Camera head cover (1)
Sticker (1)

Optional accessories

Tuner timer unit TT-V8EC/V8UB, AC power adaptor AC-V8E/V8UB, Battery pack NP-22, DC pack DCP-85, Car battery cord DCC-16AE, External microphone shoe SAD-100, Remote Commander RM-84, Cable attachment VMC-540, Cable VMC-262M (2 phono plugs to 6-pin connector), VMC-2104M (2 phono plugs to 21-pin connector), VMC-2106S (3 phono plugs to 21-pin connector), VMC-600M/601M (2 phono plugs to 2 phono plugs), VMC-602MS/603MS (2 phono plugs to 3 phono plugs)

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

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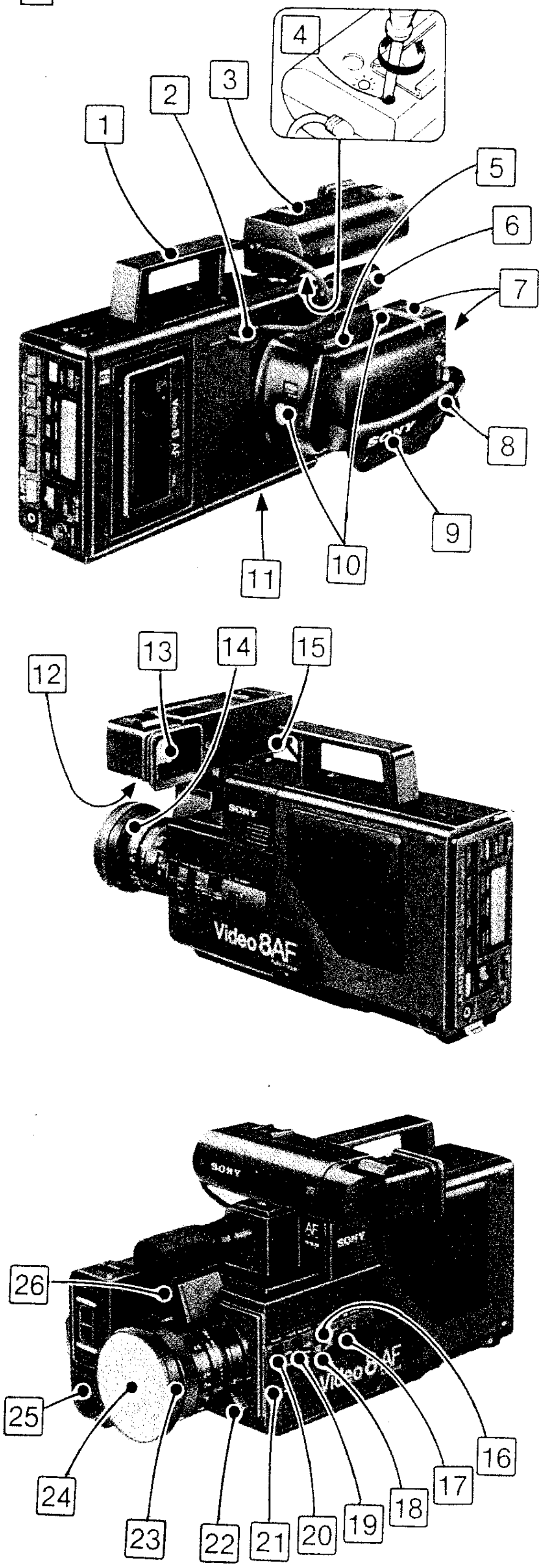
- SUPPLEMENT-1

- CCD-V7AF-E SERVICE MANUAL

SECTION 1
GENERAL

A



1-1. LOCATION AND FUNCTION OF PARTS AND CONTROLS

A

For details on the use of each control, refer to the pages indicated in the brackets.

1 **Handle**

2 **VIEWFINDER jack**
Connect the plug of the viewfinder cable.

3 **Accessory shoe**
Attach an optional external microphone or video light (up to 500 g, 1 lb).

4 ☼ **(brightness) control screw** (blue screw on the bottom of the viewfinder)
Turn with a Philips screwdriver to adjust the brightness of the viewfinder screen, if necessary.

5 **Power zoom button [p.18]**
Press for smooth power zooming between wide-angle (W) and telephoto (T) positions.

6 **Microphone**
Sound is recorded simultaneously while shooting.

7 **BATTERY compartment and battery ejector**
Insert an NP-22 battery pack, ACP-85E/85UB (or for the models outside Europe) ACP-88 ac pack or DCP-85 dc pack with the metal terminals facing the unit.
To remove the battery pack, ac pack or dc pack, push the bottom of the pack and at the same time slide the ejector in the direction of the arrow. The pack will then slide out.

8 **Lens cap hook**
Snap the lens cap here when it is not in use.

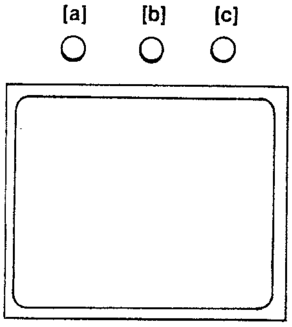
9 **Grip strap [p.12]**
Adjust this so that your fingertips can easily manipulate the START/STOP button.

10 **START/STOP button [p.10, p.14]**
Press to start or stop camera recording.

11 **Tripod receptacle**
Attach an optional tripod.

12 **Viewfinder lens adjustment lever [p.13]**
Adjust to your eyesight to assure good focus. Be sure to adjust when shooting for the first time or after another person has used the camera.

13 Electric viewfinder
The lamps inside the viewfinder light or blink during camera recording.



- [a] **Low light lamp (yellow):** Lights when the light is insufficient.
- [b] **Tape run/battery lamp (red):** Functions when the camera section is turned on. Lights steadily during recording.
  Blinks when the inserted battery is exhausted, when the tape comes to an end, or when the tab on the inserted cassette is set to prevent erasure of a recording.
- [c] **White balance lamp (orange):** Functions when the low light lamp is not lit. Lights steadily when the WHITE BALANCE switch is set to ☼ or 💡 .
  Blinks when the white balance is not adjusted. Goes out when the WHITE BALANCE switch is set to ⤵ , and the white balance has been adjusted.

14 Focus ring [p.17]
When manually focusing by setting the FOCUS switch to "MAN", turn the ring to focus while looking through the viewfinder.

15 Viewfinder slide button [p.12]
When you use your left eye, press this button and pull the viewfinder in the direction of the arrow until it locks. You can also remove the viewfinder.

16 CAMERA POWER switch and lamp [p. 9]
Slide to the right to turn on the camera section. The lamp lights up.
To turn off the camera section, slide again and the lamp goes off.
When a TT-V8EC/V8UB tuner timer unit is connected, this switch does not function.

17 ↩ REC REVIEW button [p.15]
Press when the unit is set in the CAMERA mode or VTR-CAMERA mode, and then is set in the pause mode during recording, to review the last few seconds of the recorded picture.

18 Aperture switch [p.18]
The amount of light entering the camera is determined by this switch.
■ (centre): Normally set to this position.
BACK LIGHT: Set to this position when the subject is back lit.
HIGH LIGHT: Set to this position when the subject is too brightly lit against the background.

19 WHITE BALANCE switch
To adjust white balance, slide the switch all the way down and return it to the automatic position (⤵), or set it to the proper position according to the prevailing light conditions.
☼ : Sunlight (outdoors)
💡 : Artificial light (indoors)
⤵ : Automatically adjusted

20 FOCUS switch [p.14, p.17]
Set to AUTO for the automatic focusing function of this camera recorder to activate. Set to MAN (manual), when you desire to focus manually.

21 PUSH AUTO button [p.17]
Even while the FOCUS switch is set to "MAN" for manual focusing, you can activate the automatic focusing function by keeping this button depressed.

22 Manual zoom lever [p.18]
Turn the zoom lever for manual zooming between the wide-angle and telephoto positions.

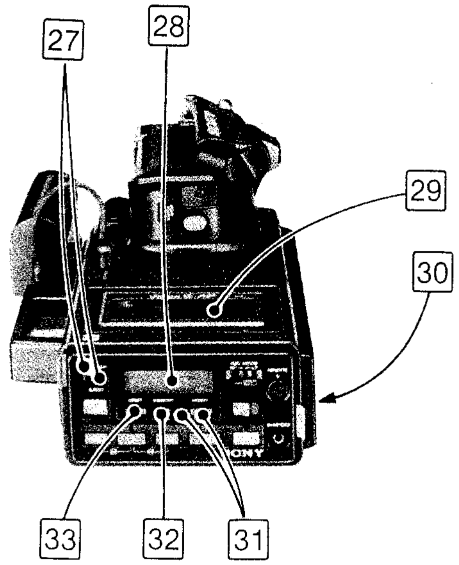
23 Lens hood
Usually attached to the lens ring. Remove when attaching other optional lenses.

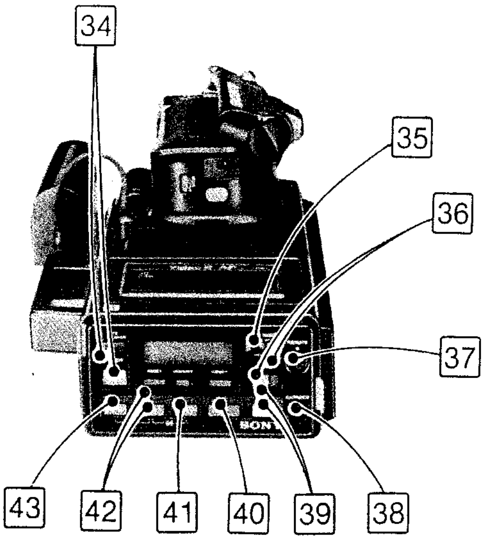
24 White lens cap [p.13]

25 Infrared beam emitter
Transmits an infrared beam toward the object to be shot for auto focusing.

26 Infrared beam detector
The infrared beam transmitted by the infrared beam emitter and then reflected from the object to be shot is received here for the auto focusing of the recorder to function.

B

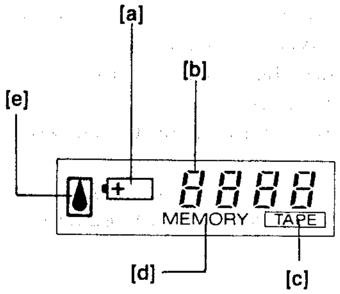




B

27 VTR POWER switch and lamp [p. 9]
Press to turn on the recorder section. The lamp lights up. Press again to turn it off. When an AC-V8E/V8UB ac power adaptor or a TT-V8EC/V8UB tuner timer unit is connected, use the power switch of the connected unit as this switch does not function.

28 Display window



[a] Blinks when the inserted battery is exhausted.
[b] The counter changes as the tape moves.
[c] Blinks when the recorder is in the CAMERA mode and no cassette is inserted, the recorder is in the CAMERA mode and the tab on the cassette is out, or the tape comes to an end during recording.
[d] Indicates that the MEMORY function is activated.
[e] Blinks when the moisture has condensed inside the unit.

29 Cassette holder

30 MULTI CONNECTOR [p.19]
Connect to an RFU-85 RFU adaptor, an AC-V8E/V8UB ac power adaptor or TT-V8EC/V8UB tuner timer unit. To open the lid, slide it in the direction of the arrow.

31 INSERT button and lamp [p.29]
Press to insert a recording onto a previously-recorded tape when the recorder is set in the playback pause mode. The lamp lights during operation.

32 MEMORY button [p.23, p.29]
To return the tape to the "0000" point, press this button and the MEMORY mark appears. Then press the ◀◀ or ▶▶ button. On insert recording, the recording stops automatically at the "0000" point.

33 RESET button [p.23, p.29]
Press to reset the counter to "0000".

34 **EJECT button and lamp [p.11]**
On cassette insertion or ejection, slide down this button after turning on the unit and the cassette compartment will pop up.

35 **REC MODE/EDIT switch [p.13, p.28]**
During recording, this switch functions as the recording tape speed SP/LP selector.
The recording time of a cassette in the LP mode is 2 times that in the SP mode.
During playback, normally keep this switch in the left position. Only when playing back a tape for the purpose of recording the playback with another recorder, set this switch to the right "EDIT" position.

36 **● (record) switch and lamp [p.10]**
Slide to the right to start recording when only the recorder section is turned on. The lamp lights. When the CAMERA POWER switch is turned on after turning on the recorder section, the recorder is set in the recording pause mode. To start recording, press the **II** or START/STOP button. When only the camera section is turned on, this switch does not function.

37 **REMOTE connector** (5-pin)
Connect a wired Remote Commander RM-84. The optional RM-E100V editing controller is also connected here.

38 **EARPIECE jack (mini type) [p.15]**
Connect an earpiece to monitor the sound being recorded during camera or insert recording, or the playback sound while viewing the playback picture in the viewfinder.
Use a Sony earpiece ME-20H or its equivalent.

39 **II (pause) button and lamp**
Press to stop the tape for a moment during recording or playback. The lamp lights. During playback of a recorded tape, a still picture is obtained. Press again to release the pause mode.

40 **■ (stop) button**
Press to stop the tape.

41 **▶▶ (fast forward) button**
Press to advance the tape. Pressing this button during playback lets you see a high-speed playback.

42 **▶ (play) button and lamp**
Press to play back a tape.

43 **◀◀ (rewind) button**
Press to wind the tape back. Pressing this button during playback lets you see a high-speed playback in reverse.

1-2. POWER SOURCES

SELECTION OF POWER SOURCES

Operate the unit on one of the following power sources. This manual shows the operations on the battery pack, the ac pack and the car battery. For operation on other power sources, see the instruction manual furnished with the equipment to be used.

Place	Power source	Accessory to be used
Indoors	House current	AC pack ACP-85E/85UB or (for the models outside Europe) ACP-88
		AC power adaptor AC-V8E/V8UB
		Tuner timer unit TT-V8EC/V8UB
Outdoors	Battery pack	Battery pack NP-22
In the car	12 V or 24 V car battery	DC pack DCP-85 and car battery cord DCC-16AE

When the TT-V8EC/V8UB is connected
The following operations are possible.
- Power supply for the CCD-V8AF-E
- Battery charge
- Playback of a tape
- TV programme recording
- Timer recording
- Tape editing

For details on connections and operations, please read the instruction manual furnished with the TT-V8EC/V8UB.

When the AC-V8E/V8UB is connected
The following operations are possible.
- Power supply for the CCD-V8AF-E
- Battery charge
- Playback and recording of a tape
- Tape editing

For details on connections and operations, please read the instruction manual furnished with the AC-V8E/V8UB.

THREE MODES OF OPERATION

The CCD-V8AF-E video camera recorder is equipped with two power switches, the CAMERA POWER switch and VTR POWER switch. Press either or both of these switches according to the operating modes below.

Modes and their uses

Operating mode	Power switch to press	Lamp that lights up	Operable buttons	Power switch to turn off
CAMERA mode Useful for camera recording. (The buttons irrelevant for recording will not work when pressed.)	CAMERA POWER switch	CAMERA POWER lamp	VTR POWER REC MODE/EDIT START/STOP REC REVIEW Power zoom WHITE BALANCE Aperture EJECT RESET MEMORY	CAMERA POWER switch
VTR mode Useful for playback or TV programme recording. The camera section's power is saved.	VTR POWER switch	VTR POWER lamp	REC MODE/EDIT EJECT ◀◀ ▶ ▶▶ ■ ❚❚ ● RESET MEMORY INSERT CAMERA POWER	VTR POWER switch
VTR-CAMERA mode Useful for playback during camera recording or insert camera recording.	VTR POWER switch and CAMERA POWER switch	CAMERA POWER lamp and VTR POWER lamp	all buttons	VTR POWER switch or CAMERA POWER switch

When an AC-V8E/V8UB ac power adaptor is connected
The VTR POWER switch of the video camera recorder will not work. **To turn the video camera recorder on or off, use the VTR POWER switch of the AC-V8E/V8UB ac power adaptor.** Press the VTR POWER switch of the ac power adaptor so that the recorder section of the video camera recorder will be turned on for the VTR mode. To turn on the camera section too for the VTR-CAMERA mode, slide the CAMERA POWER switch on the recorder. To turn off only the camera section, slide the CAMERA POWER switch again. To turn off the entire unit, press the VTR POWER switch on the ac power adaptor.
The video camera recorder cannot be set in the CAMERA (only) mode with the adaptor connected.

When a TT-V8EC/V8UB tuner timer unit is connected
The VTR POWER switch and the CAMERA POWER switch of the video camera recorder will not work. To turn the video camera recorder on or off, use the ON/STANDBY switch of the TT-V8EC/V8UB tuner timer unit.

- **To set this video camera recorder to the VTR mode,**
set the INPUT SELECT switch of the TT-V8EC/V8UB to TUNER for recording TV programmes or to LINE for recording input signals from the AUDIO/VIDEO IN jacks of the TT-V8EC/V8UB.
- **To set this video camera recorder to the VTR-CAMERA mode,**
set the INPUT SELECT switch of the TT-V8EC/V8UB to CAMERA.

The video camera recorder cannot be set in the CAMERA (only) mode with the tuner timer unit connected.

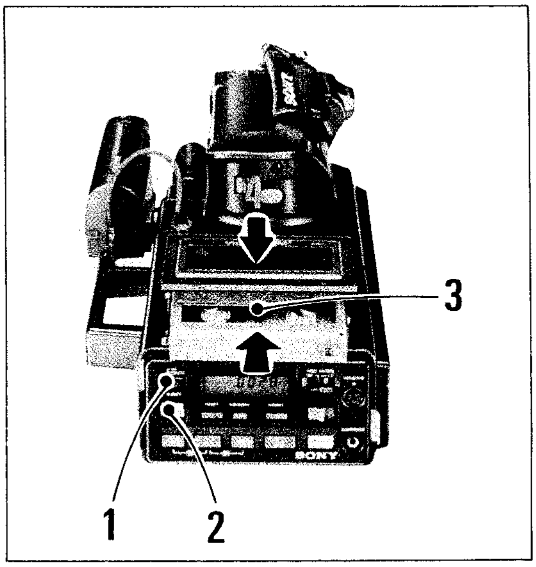
Recording operation of each mode

Operating mode	**How to record**
CAMERA mode	When the CAMERA POWER switch is turned on, this unit is automatically set in the recording pause mode. Press the START/STOP button to start recording.
VTR mode	Slide the ● switch to start recording.
VTR-CAMERA mode	When the ● switch is slid or when the CAMERA POWER switch is turned on after turning on the VTR POWER switch, this unit is set in the recording pause mode. Press the ❚❚ or START/STOP button to start recording.

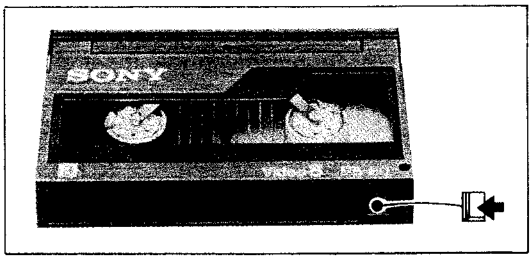
1-3. CASSETTE CARE

Always insert a cassette in the correct direction. Never insert it upside down.

C-1



C-2



CASSETTE INSERTION C-1

1 Turn on the power. (See page 9. Any operating mode is usable.)
2 Press the EJECT button and the cassette compartment will pop up.
3 Insert a cassette with the window upwards and the arrow mark in front.
4 Push down the cassette compartment.

CASSETTE EJECTION

1 Turn on the power.
2 Press the EJECT button.
3 Take the cassette out and push down the cassette compartment.

THE TAB ON THE CASSETTE C-2

(The photo is Sony type.)

When a new recording is made on a previously recorded cassette, the previous recording will be automatically erased. To avoid erasing a recording, slide the tab out to cover the opening.
When the tab is out, a recording cannot be made. To re-record on a cassette, slide the tab in.

Note
Never insert anything in the small holes on the rear of the cassette. These holes are used to sense the kind of tape, thickness of tape, if the tab is out or in, etc.

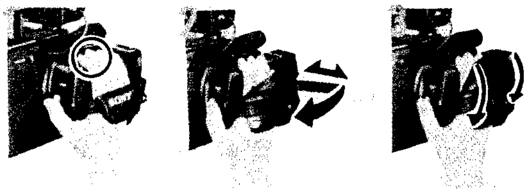
1-4. CAMERA RECORDING

HOW TO HOLD THE CAMERA

Adjusting the grip strap D-1

1 Position your right hand so that your fingertips can easily manipulate the START/STOP button and the power zoom button.
2 Open the cover and adjust the strap so that your grip on the camera feels secure.
3 Close the cover.

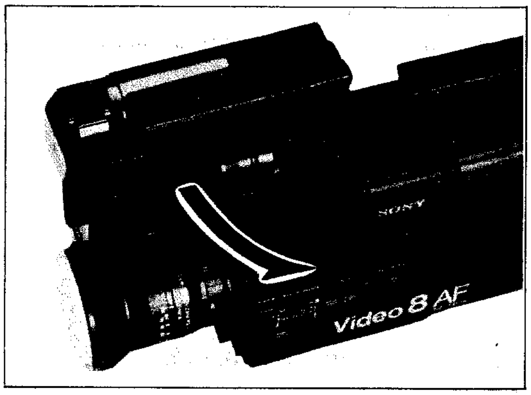
D-1



Set the viewfinder D-2

Turn the viewfinder until it locks (90 degrees).

D-2



Place your right hand through the grip strap and your left hand under the video camera recorder to support it. D-3

For stable shooting, hold the upper arm firmly against the body.

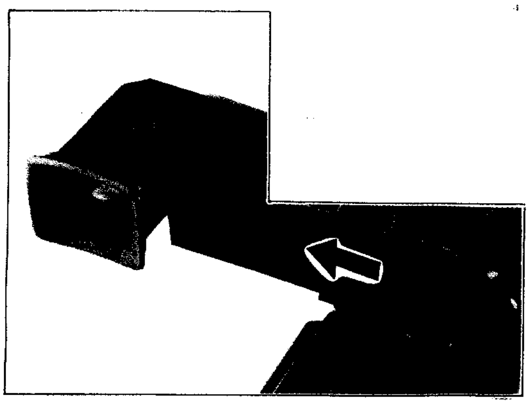
D-3

When you use your left eye D-4

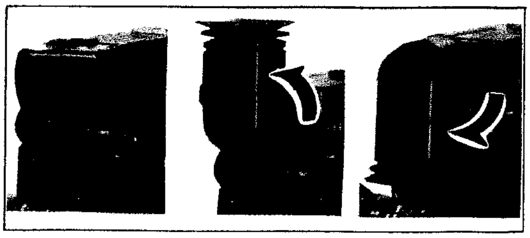
Press the viewfinder slide button and pull the viewfinder out until it locks.

The viewfinder can be turned 90 degrees up and down to make high-angle or low-angle recording possible. D-5

D-4



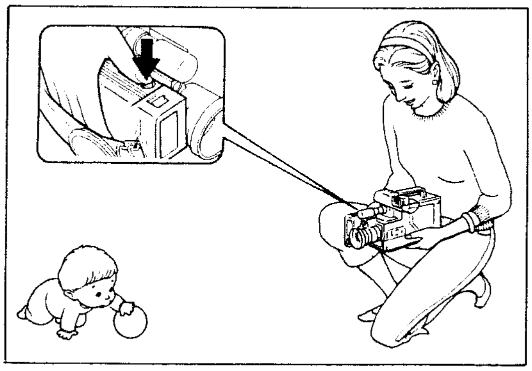
D-5



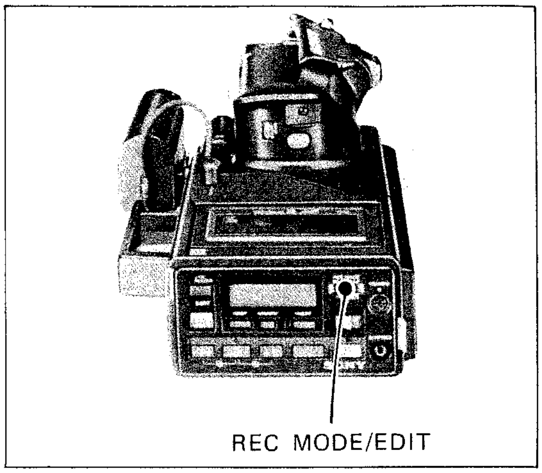
When shooting from a low angle D-6

Turn the viewfinder upward so that you can look into it from above. When shooting, use the START/STOP button on the upper surface of the grip.

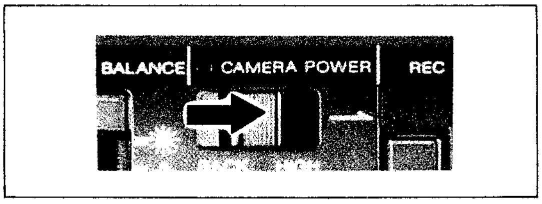
D-6



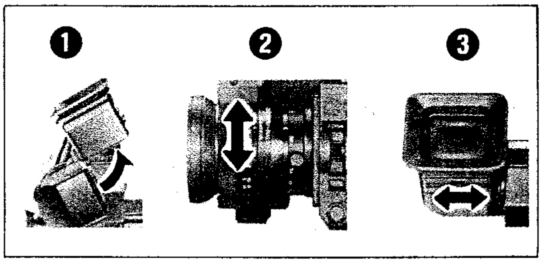
E-1



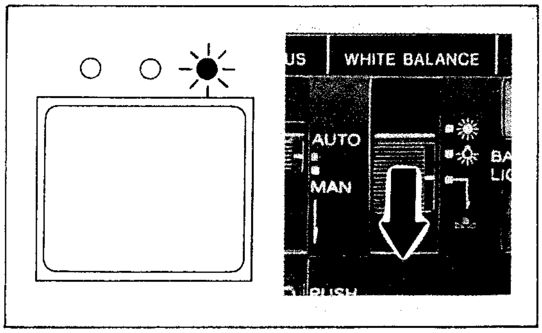
E-2



E-3



E-4



RECORDING

The NP-22 battery pack is used as the power source.

1 **Set the REC MODE/EDIT switch to the desired position according to the length of the programme to be recorded.** E-1
The recording time of a cassette in the LP mode is twice as long as that in the SP mode.

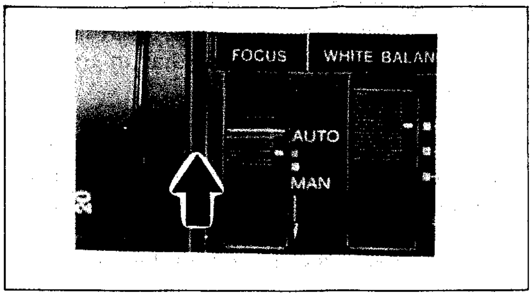
2 **Slide the CAMERA POWER switch to turn on the power (CAMERA mode) and insert the cassette into the cassette holder.** E-2
The CAMERA POWER lamp lights up. The video camera recorder enters the recording pause mode and the recording and pause lamps light up.

3 **Adjust the viewfinder lens.** E-3
The distance of optimum vision varies from person to person.
Viewfinder lens adjustment is necessary when using the camera for the first time or after another person has used it.
❶ Lift up the viewfinder lens.
❷ Focus with the focus ring while observing the viewfinder screen.
❸ Replace the viewfinder lens and set the viewfinder lens adjustment lever so that the subject in the viewfinder is in focus.

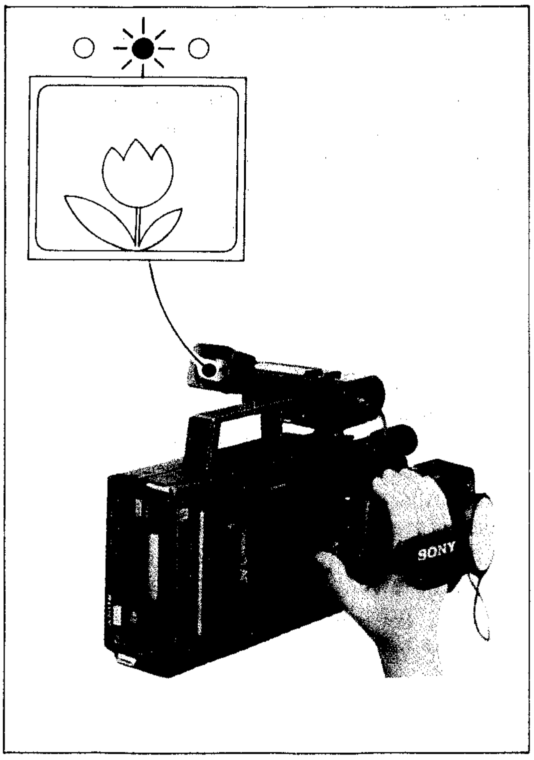
4 **Adjust the white balance (automatic adjustment).** E-4
With the white cap on the lens, point the camera at a light source (indoors) or a subject (outdoors) from a distance of at least two meters. Slide the WHITE BALANCE switch all the way down to ⊟ ; the white balance switch will immediately return to the ▪┐ position. The white balance is now adjusted.

After white balance has been adjusted, the white balance lamp in the viewfinder goes out.
For details on white balance, see the "WHITE BALANCE".

E-5



E-6



5 **Select the subject to be recorded through the viewfinder.**

6 **Set FOCUS switch to AUTO.** E-5

7 **Press the START/STOP button to start recording.** E-6
The red lamp in the viewfinder lights up.

To stop recording, press the START/STOP button again.
The red lamp in the viewfinder goes out and the video camera recorder enters the recording pause mode.
- If you leave the recorder in the pause mode for seven minutes or more, the power of the recorder will be automatically turned off.
- A vertical band may appear when a subject such as a candle flame or a light is shot against a dark background.

After using the video camera recorder, slide the CAMERA POWER switch again. The CAMERA POWER lamp goes out.

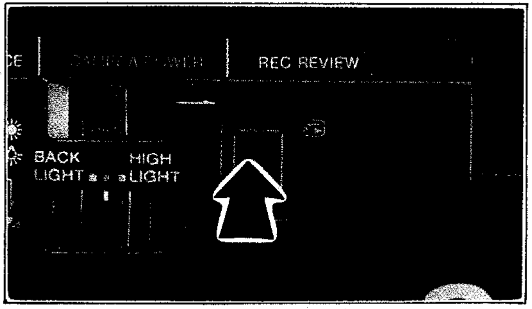
Note
Never record an extremely bright object just after recording under dark conditions; otherwise vertical streaks may appear in the picture and be recorded as well.

SMOOTH RECORDING

Smooth recording can be made even if the recording is stopped and started again, or even if the power is turned off and on again, provided that the cassette is not removed.
Recording should be started from the recording pause mode. If the cassette has been removed, proceed as follows.

1 Play back the tape to get the point from which the recording is to begin again, referring to the "MONITORING THE PLAYBACK PICTURE ON THE VIEWFINDER SCREEN" on page 15 and stop the tape with the ■ button.
2 Set the recorder to the VTR-CAMERA mode by sliding the CAMERA POWER switch.
3 Slide the ● (record) switch to the right and press the START/STOP button or ❚❚ button to start recording.

I



INSTANT REPLAY ON THE SPOT (Record review)

When the recorder is set in the CAMERA mode or VTR-CAMERA mode, and then is set in the recording pause mode, the last few seconds of the recording can be played back on the viewfinder screen.

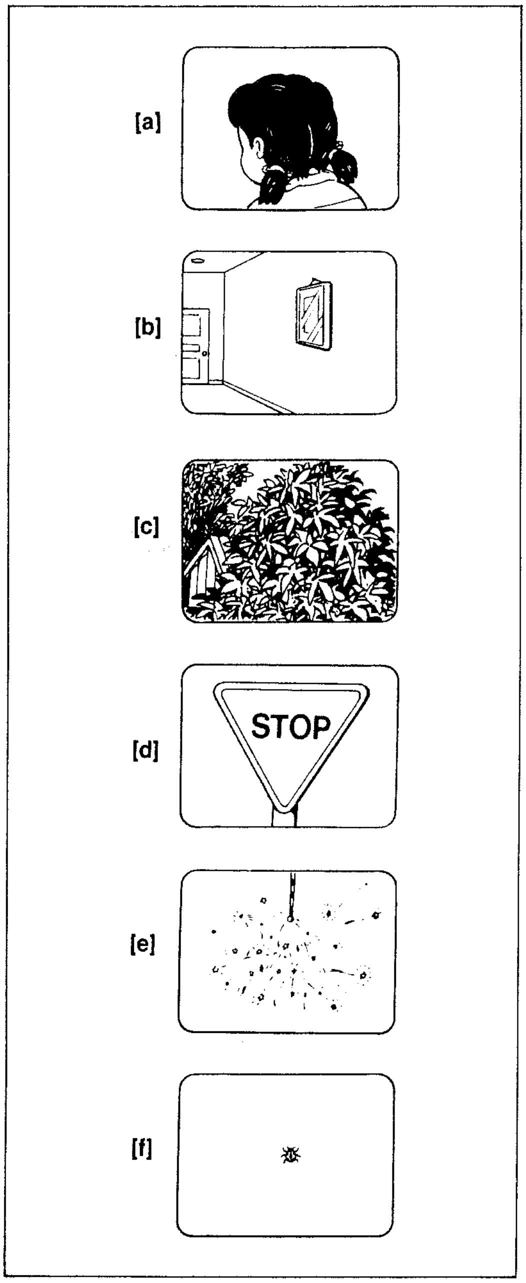
1 When the scene you want to record is finished, press the START/STOP button to stop the tape.
2 Press the ⟲ REC REVIEW button. F
The last few seconds of the recorded scene are played back in reverse, and then played back normally.
After playing back the tape up to the end of the recorded portion, the recorder enters the recording pause mode.
3 To restart recording, press the START/STOP button.

MONITORING THE PLAYBACK PICTURE ON THE VIEWFINDER SCREEN

If the recorder is in the CAMERA mode, turn off the CAMERA POWER switch and turn the VTR POWER switch on. Lift up the viewfinder lens to monitor the recorded picture on the viewfinder screen, and rewind and play back the tape. To monitor the playback sound, connect an earpiece to the EARPIECE jack.

1-5. AUTO FOCUSING

G



This video camera recorder focuses by transmitting an infrared beam toward the subject and receiving the reflected beam with an infrared beam detector.

For almost any subject centered in the viewfinder, auto focusing will activate. However, for some subjects listed below, auto focusing does not work correctly and manual focusing is required.

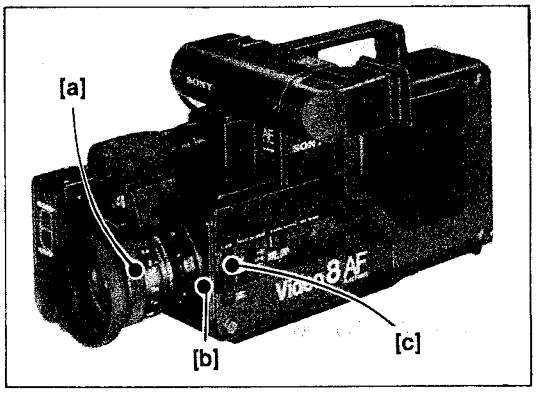
Objects for which the auto focusing does not activate G

- **Black objects which absorb the infrared beam**
  [a] Ex. dark curtain, hair or shade.
- **Objects in which the infrared reflection disperses**
  [b] Ex. a smooth surface aimed at from an angle. Auto focusing activates if it is aimed at squarely.
- **Objects in which the infrared reflection is not sufficient**
  [c] Ex. bushes, grass or plants in the telephoto position.
- **Objects in which the infrared beam is reflected too much**
  [d] Ex. traffic signs, a white wall, mirror, or subject through plate glass.
- **Objects which are not solid**
  [e] Ex. fireworks, candle flame or smoke.
- **Objects which are extremely small and do not cover more than 1/10 of the viewfinder's view**
  [f] Ex. insects.

Notes

- Auto focusing works up to about 13 meters (43 feet). Adjust the focus manually for a subject more than 13 meters away.
- If conversion lenses or special effect filters are used, focus should be set manually.
- If the lens or the infrared beam detector are dirty, auto focusing does not function correctly. Wipe and clean with a soft cloth.
- When using the auto focus function, do not turn or stop the focus ring forcibly. Do not look into the infrared beam emitter for a long time.

H-1



1-6. MANUAL FOCUSING

H-1

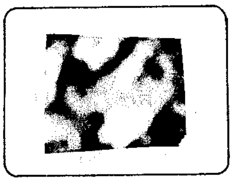
[a] Focus ring
[b] Manual zoom lever
[c] FOCUS switch

1 Set the FOCUS switch to MAN.
2 Turn the manual zoom lever to the telephoto position (72) to make the subject as large as possible in the viewfinder. H-2
3 Turn the focus ring to achieve sharp focus. H-3
4 Set the desired shot length using the manual zoom lever. H-4

SOME HELPFUL HINTS

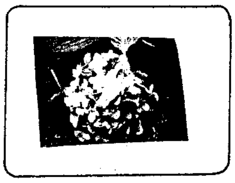
- Focusing with the lens in wide angle can lead to shots being out of focus. This is because the focusing field is wider than in telephoto, making it harder to achieve definite and sharp focus. Therefore, if the subject is focused in the lens' telephoto position, it will stay in perfect focus regardless of subsequent zooming operation. Focus needs to be reset only if the distance between the camera and the subject changes.
- When shooting a scene with lots of movement in bright light, the subject can be kept in good focus regardless of movement by setting the zoom lever to 12 and the focus ring to 2 m.
- The figures on the focus ring indicate the distance between the subject and the ɸ mark on the side of the recorder body.
- When shooting in low light situations, such as indoors, the depth of field for proper focus becomes very shallow. For best results, set the focus in telephoto, and shoot at wide angles.
- If the focal length is less than 1.3 m (approx. 4 ft), remove the lens hood of this camera and attach an optional closeup camera lens instead.

H-2



H-3

H-4

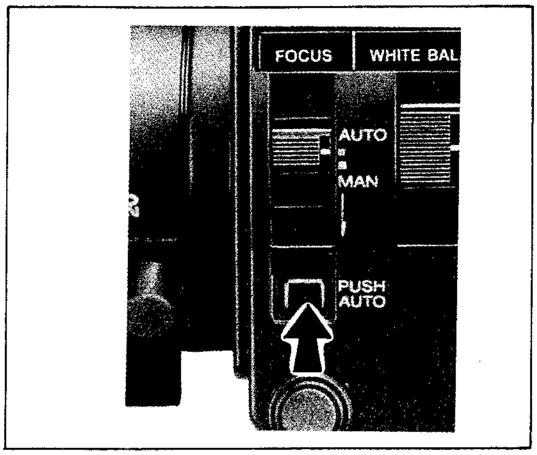


QUICK FOCUS ADJUSTMENT I

For quick, automatic adjustment of focus while recording in the manual mode, simply press the PUSH AUTO button until the subject is correctly focused.

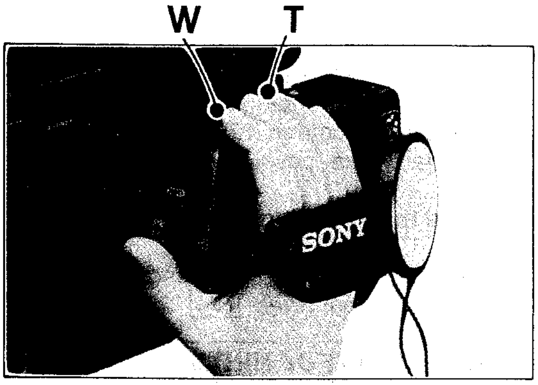
If you press the PUSH AUTO button before starting recording, you can get a well-focused picture from the beginning of the recording.

I

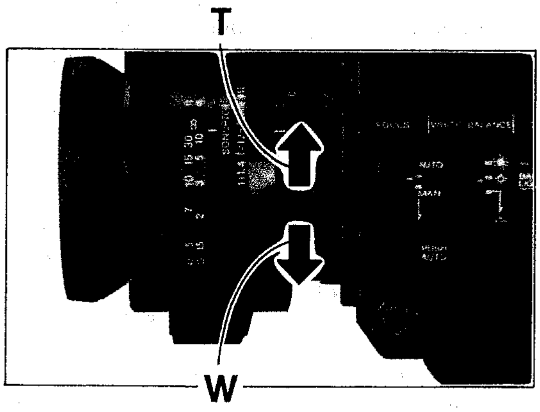


1-7. ZOOMING

J-1



J-2



Either manual zoom or power zoom can be used. To make zooming more effective, shoot a still scene for a few seconds at the beginning and the end of zooming.

POWER ZOOM J-1

Press T for telephoto and W for wide-angle.

MANUAL ZOOM J-2

For special effects, when extra fast or very slow zooms are required, manual zooming should be used.

1-8. IRIS ADJUSTMENT

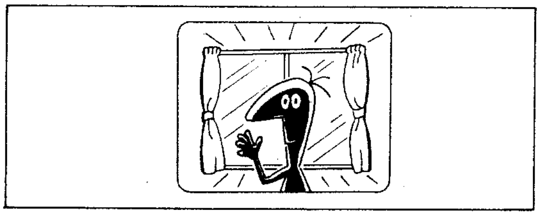
The iris is adjusted automatically with the aperture switch set to ■ (centre). When shooting a scene with strong contrast such as the ones described as follows, adjust the aperture switch to BACK LIGHT or HIGH LIGHT.

- When a backlit shot results in the subject being too dark..........set to BACK LIGHT. K-1
- When a subject is too bright against a dark back ground.............set to HIGH LIGHT. K-2

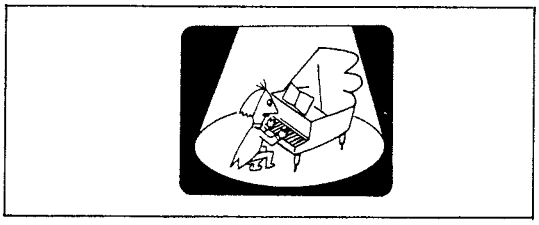
Notes

Be sure the picture in the viewfinder has the proper brightness, when the aperture switch has been set to BACK LIGHT or HIGH LIGHT. Wrong selection of the position results in a picture that is too bright or too dark.

K-1



K-2

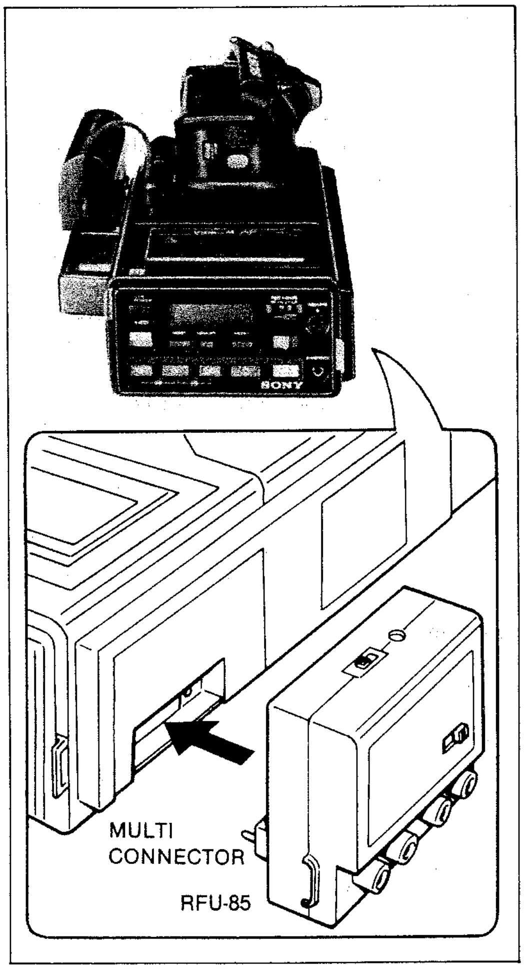


1-9. PLAYBACK OF THE RECORDED TAPE

The following connections are only for viewing tapes.
When you are away from home and still want to see the playback picture with an available TV, select one of the following ways.

With following connections, TV programmes can be viewed as usual.
If you also want to record a TV programme, see page 24.

L-1

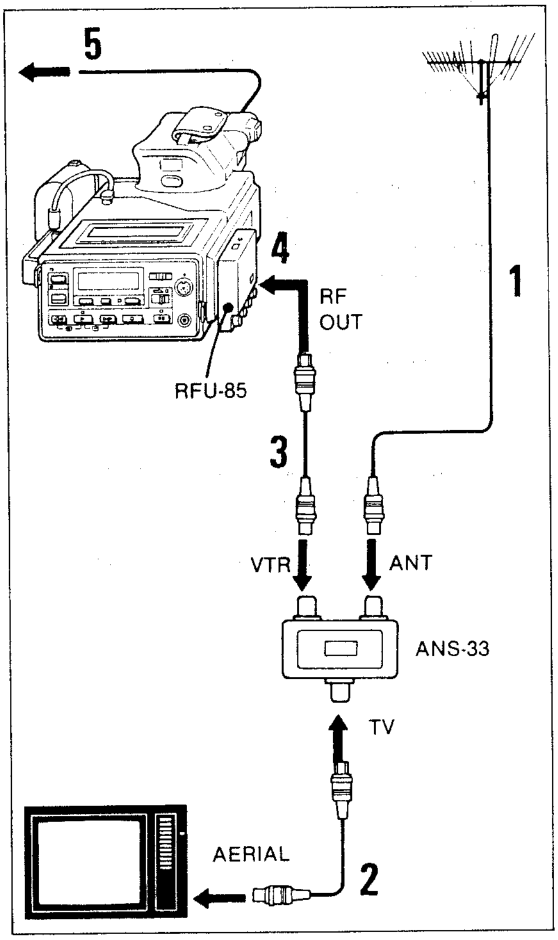


CONNECTION

Before making connections, be sure to unplug the mains leads of all the equipments.
With the supplied ACP-85E/85UB/88 ac pack and RFU-85 RFU adaptor L-1
Connect the RFU adaptor to the MULTI CONNECTOR of the video camera recorder and insert the ac pack into the battery compartment.

Note
When connecting the RFU-85, gently align the guides and holes of the RFU adaptor with the pins and holes of the MULTI CONNECTOR of the recorder. Do not jam the adaptor in as this will damage the pins of the MULTI CONNECTOR.

L-2



Connecting a TV without audio/video input connectors L-2

1 Disconnect the aerial cable from the aerial socket of the TV and connect it to the ANT connector of the ANS-33 antenna selector.
2 Connect the TV connector of the ANS-33 to the aerial socket of the TV with the aerial cable supplied to the RFU-85.
3 Connect the VTR connector of the ANS-33 to the RF OUT connector of the RFU-85 with the aerial cable supplied to the RFU-85.
4 Set the RF/LINE selector of the RFU-85 to RF and the I/G selector to the proper position according to the TV system of your area.
5 Connect all the mains leads to mains outlets.

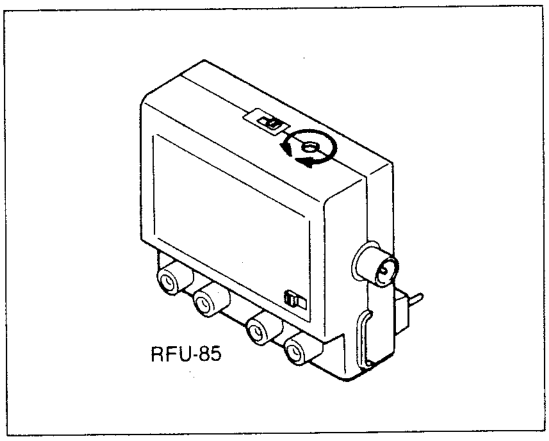
Set the selector switch of the ANS-33 as follows.
For viewing a playback picture, set to VTR.
For TV programme viewing, set to ANT.

Adjustments
One of the television programme positions must be adjusted to receive the signal from the video camera recorder.
1 Turn on the TV and select a programme position which is not being used to receive a TV station.
2 Press the VTR POWER switch of the video camera recorder.
3 Slide the CAMERA POWER switch of the video camera recorder.
4 Set the selector switch of the ANS-33 to VTR.
5 Tune the channel of the TV until you see the picture and hear the sound to be shot by the recorder.

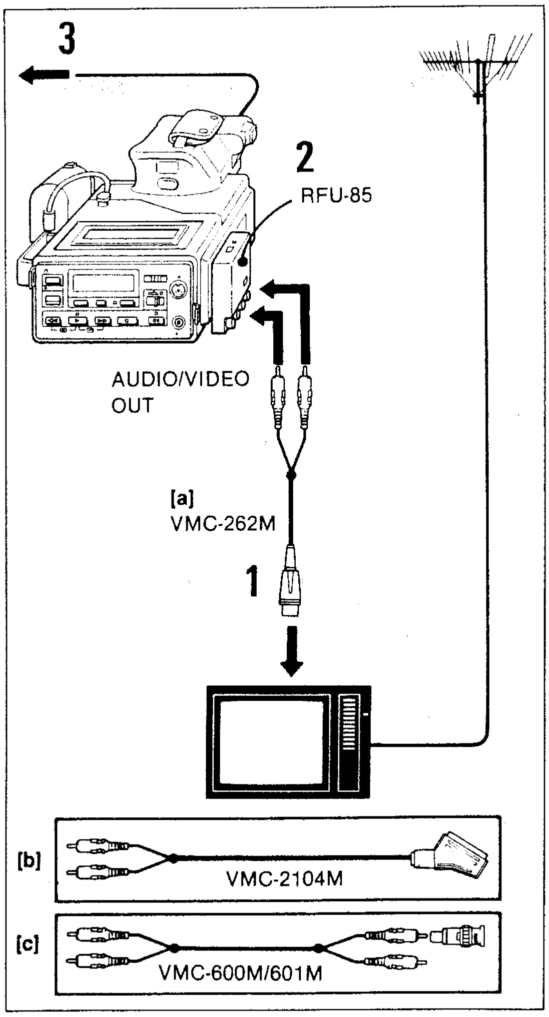
If you are not sure how to adjust your TV, please refer to the TV's instruction manual or consult your dealer.

Whenever you use the video camera recorder, you should set the TV to the programme position selected in this adjustment.

L-3



L-4



If the playback picture is not free of disturbance

1 Set the selector switch of the ANS-33 to ANT.
2 Adjust the programme position of the TV to a channel between UHF channels 30 and 39 with the tuning control or the fine tuning control on the TV, so that the TV screen shows no picture and so that a steady rustling sound or no sound is heard.
3 Set the selector switch of the ANS-33 to VTR.
4 Slowly turn the RF channel screw of the RFU-85 with the supplied screwdriver, until you see an undistorted picture of what is being shot. L-3
   Now the TV adjustment is complete.

Connecting a TV receiver/colour monitor which is equipped with the following connector(s) L-4

6-pin DIN connector [a]

Leave the aerial cable connected to the aerial socket of the TV.

1 Connect the AUDIO/VIDEO OUT jacks of the RFU-85 to the 6-pin DIN connector of the TV with an optional VMC-262M audio video cable.
2 Set the RF/LINE selector of the RFU-85 to LINE.
3 Connect all the mains leads to mains outlets.

With this connection, you don't have to select the channel for the video camera recorder. Instead, set the TV/VIDEO select button of the TV to the proper setting.

For viewing a playback picture, set to the VIDEO mode.

For TV programme viewing, set to the TV mode.

When a colour TV tuner is not connected to a colour monitor, TV programmes can't be viewed.

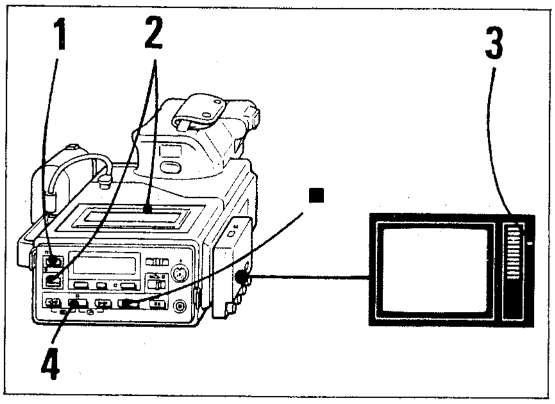
When a 21-pin connector (EUROCONNECTOR) is available on the TV [b]

Use an optional VMC-2104M audio video cable instead of the VMC-262M audio video cable in step **1**.

When audio/video connectors are available on the TV [c]

Use an optional VMC-600M/601M audio video cable instead of the VMC-262M audio video cable in step **1**.

L-5



OPERATION L-5

The viewfinder cable need not be connected.

1 Turn on the power of the equipment to be used.
2 Insert a cassette.
3 Turn on the TV or colour monitor.
   When a TV without audio/video input connectors is connected, select the programme position which is adjusted for the video camera recorder.
   When a TV with 6-pin DIN, 21-pin or audio/video connectors is connected, set the TV/VIDEO select button to the VIDEO mode.
4 Press the ▶ button of the video camera recorder.
   The lamp lights and the playback starts.

To stop the playback, press the ■ button.

When the tape comes to an end, the unit automatically stops.

DIFFERENT FORMS OF PLAYBACK

To obtain a still picture

Press the ❚❚ button during playback.
Streaks will appear in the still picture. The sound will be muted. To resume normal playback, press the ❚❚ button again.
When the pause mode lasts for more than approximately 7 minutes, the pause mode will be automatically released and the unit will be set in the stop mode.

Note

When a tape is recorded in the SP mode, a still picture may be noisy with many streaks and become black-and-white.

To view the picture at high speed

Keep pressing the ▶▶ or ◀◀ button during playback. For high-speed playback picture in the forward direction, press the ▶▶ button. For high-speed playback picture in the reverse direction, press the ◀◀ button.
Streaks will appear in the high-speed pictures. The sound will be muted.
Release the button for normal playback.

Note

When a tape is recorded in the SP mode, a high-speed picture may be played back sometimes in black-and-white and streaks will be wider than those of the LP recorded tape.

1-10. USE OF THE TAPE COUNTER

TO INDEX THE WHOLE TAPE

When the unit is turned on, the tape counter will appear in the display window. Press the RESET button at the beginning of the tape so that the counter shows "0000". By noting the counter reading at a particular point, you can easily find that point later by referring to the tape counter.
Write the counter readings you want to remember on the label of the cassette.

TO RETURN TO A PRE-REGISTERED POINT

During recording or playback, press the RESET button at the point you later want to locate. The counter will be set at "0000".

1 Press the ■ button to stop the tape, when the recording or playback has finished.
2 Press the MEMORY button and the "MEMORY" mark will appear in the display window.
3 Press the ▶▶ or ◀◀ button.
The tape will be sent forward or in reverse and stop automatically when the counter reaches "0000".

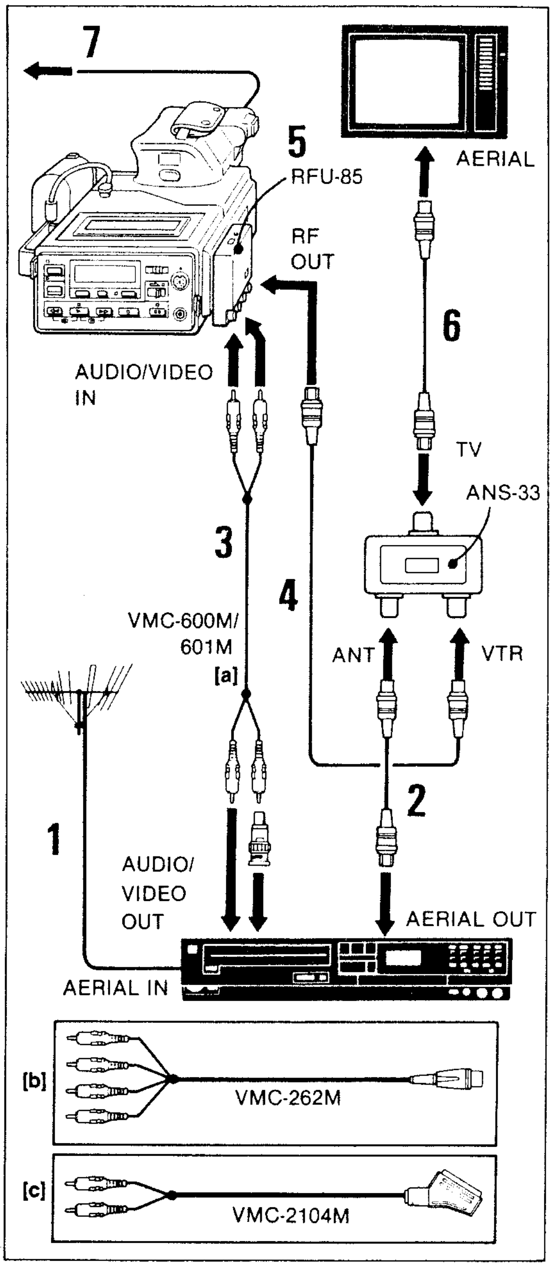
Notes

● While the "MEMORY" mark appears in the display window, the counter cannot be reset to "0000", therefore, press the MEMORY button to cancel the function and then press the RESET button.

● The counter reading and the point of the tape may not correspond exactly.

1-11. TV PROGRAMME RECORDING

M-1



The following connections make both TV programme viewing/recording and tape playing possible.

The viewfinder cable need not be connected.

PREPARATION

Before making connections, be sure to unplug the mains leads of all the equipments.

With the ACP-85E/85UB/88 ac pack and RFU-85 RFU adaptor

Connect the RFU adaptor to the MULTI CONNECTOR of the video camera recorder and insert the ac pack into the battery holder. (See page 19.)

Connecting a TV without audio/video input connectors and a VTR without an input select switch M-1

CONNECTION

1. Connect the aerial cable to the aerial in socket of the VTR.
2. Connect the aerial out socket of the VTR to the ANT connector of the ANS-33 with the aerial cable supplied with the RFU-85.
3. Connect the audio/video output connectors of the VTR to the AUDIO/VIDEO IN jacks of the RFU-85 with the optional VMC-600M/601M audio video cable [a].
4. Connect the VTR connector of the ANS-33 to the RF OUT connector of the RFU-85 with the aerial cable supplied with the RFU-85.
5. Set the RF/LINE selector of the RFU-85 to RF and the I/G selector to the proper position according to the TV system of your area.
6. Connect the TV connector of the ANS-33 to the aerial socket of the TV with an optional aerial cable.
7. Connect all the mains leads to mains outlets.

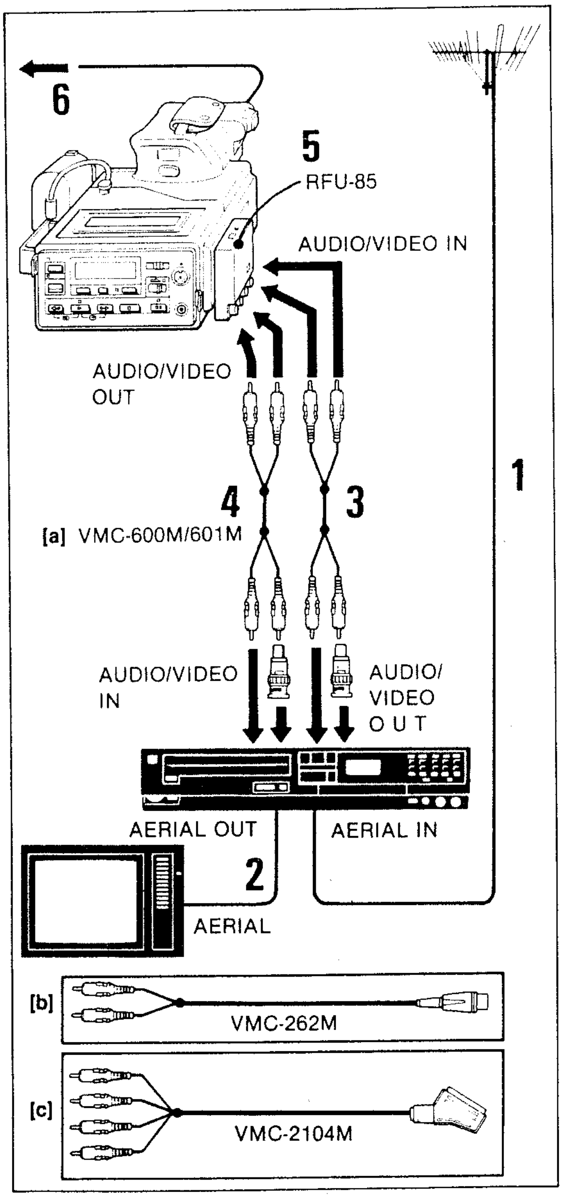
When a 6-pin DIN connector is available on the VTR [b]

Use an optional VMC-262M audio video cable instead of the VMC-600M/601M audio video cable.

When a 21-pin connector (EUROÇONNECTOR) is available on the VTR [c]

Use an optional VMC-2104M audio video cable instead of the VMC-600M/601M audio video cable.

M-2



OPERATION

Recording

1 Turn on the power of the equipment to be used.
2 Set the selector switch of the ANS-33 to VTR.
3 Insert the cassette into the video camera recorder.
4 Select the channel to be recorded with the programme select button on the VTR and select the programme position for the video camera recorder on the TV.
5 Start recording.

Playback

1 Turn on the power of the video camera recorder and the TV.
2 Set the selector switch of the ANS-33 to VTR.
3 Select the programme position for the video camera on the TV.
4 Start playback.

Recording one TV programme while viewing another

1 Set the selector switch of the ANS-33 to ANT.
2 Select the desired programme position on the TV.

Connecting a TV without audio/video input connectors and a VTR with an input select switch M-2

CONNECTION

1 Connect the aerial cable to the aerial in socket of the VTR.
2 Connect the aerial out socket of the VTR to the aerial socket of the TV with the aerial cable supplied with the RFU-85.
3 Connect the audio/video output connectors of the VTR to the AUDIO/VIDEO IN jacks of the RFU-85 with the optional VMC-600M/ 601M audio video cable.
4 Connect the AUDIO/VIDEO OUT jacks of RFU-85 to the audio/video input connectors of the VTR with an optional VMC-600M/ 601M audio video cable [a].
5 Set the RF/LINE selector of the RFU-85 to LINE.
6 Connect all the mains leads to mains outlets.

When a 6-pin DIN connector is available on the VTR [b]
Use an optional VMC-262M audio video cable instead of the VMC-600M/601M audio video cable.

When a 21-pin connector (EUROCONNECTOR) is available on the VTR [c]
Use an optional VMC-2104M audio video cable instead of the VMC-600M/601M audio video cable.

OPERATION

Recording

1 Turn on the power of the equipment to be used.
2 Insert the cassette into the video camera recorder.
3 Set the input select button of the VTR to TUNER.
4 Select the programme position to be recorded with the programme select button on the VTR and select the programme position for the VTR on the TV.
5 Start recording.

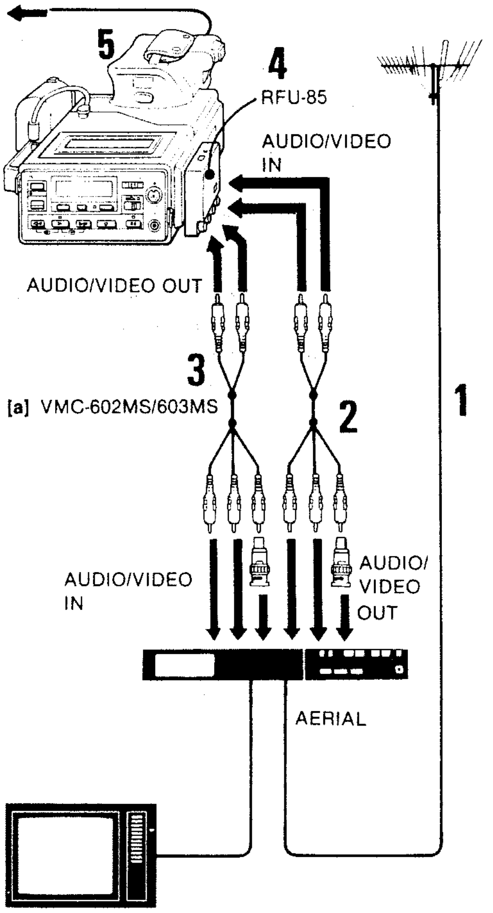
Playback

1 Turn on the power of the equipment to be used.
2 Set the input select button of the VTR to LINE.
3 Select the programme position for the VTR on the TV.
4 Start playback.

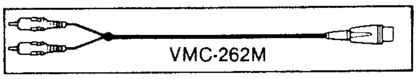
Recording one TV programme while viewing another
Select the desired programme position on the TV.

When a stereo VTR is used, use an optional VMC-602MS/603MS audio video cable instead of a VMC-600M/601M audio video cable or use an optional VMC-2106S audio video cable instead of a VMC-2104M audio video cable.

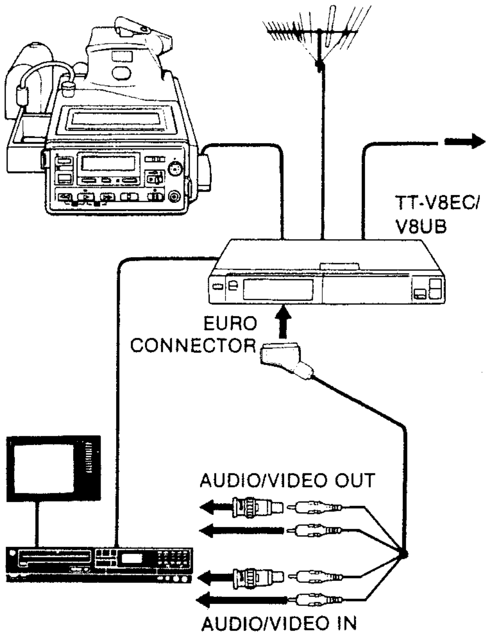
M-3


5
4
RFU-85
AUDIO/VIDEO IN
AUDIO/VIDEO OUT
3
[a] VMC-602MS/603MS
2
1
AUDIO/VIDEO IN
AUDIO/VIDEO OUT
AERIAL

[b]



M-4


TT-V8EC/ V8UB
EURO CONNECTOR
AUDIO/VIDEO OUT
AUDIO/VIDEO IN

Connecting a TV with audio/video input connectors, or a colour monitor and a TV tuner M-3

CONNECTION

The colour monitor should be connected to the TV tuner first.

1 Connect the aerial cable to the aerial socket of the TV tuner.
2 Connect the audio/video output connectors of the TV or the TV tuner to the AUDIO/VIDEO IN jacks of RFU-85 with an optional VMC-602MS/603MS audio video cable.
3 Connect the AUDIO/VIDEO OUT jacks of the RFU-85 to the audio/video input connectors of the TV or the TV tuner with an optional VMC-602MS/603MS audio video cable [a].
4 Set the RF/LINE selector of the RFU-85 to LINE.
5 Connect all the mains leads to mains outlets.

When a 6-pin DIN connector is available on the TV tuner [b]
Use an optional VMC-262M audio video cable instead of the VMC-602MS/603MS audio video cable.

The optional TT-V8EC/UB tuner timer unit can be connected directly to the MULTI CONNECTOR of this camera recorder. M-4

OPERATION

Recording
1 Turn on the power of the equipment to be used.
2 Insert the cassette into the video camera recorder.
3 Set the input select button of the TV or the TV tuner to TV, and select the programme position to be recorded.
4 Start recording.

Playback
1 Turn on the power of the equipment.
2 Set the input select button of the TV or the TV tuner to VIDEO.
3 Insert the cassette into the video camera recorder and start playback.

TO STOP THE TAPE MOMENTARILY

Press the ❚❚ button. The TV programme can be seen on the TV but the picture will not be recorded.
To resume recording, press the ❚❚ button again.
When the recording pause mode lasts for approximately 7 minutes, the pause mode will be automatically released and the unit will be set in the stop mode.

With the above connections, TV programmes can be viewed as usual.

Notes

- When the unit is set in the VTR-CAMERA or the CAMERA mode, a TV programme cannot be recorded as the camera takes precedence. For TV programme recording, turn on the VTR power only.
- When the tape comes to the end, the "TAPE" mark will blink in the display window. When the tape has ended, the unit will be automatically set in the stop mode.

1-12. INSERT RECORDING

You can insert (record) video and audio simultaneously from the camera, a TV or a VTR onto any recorded tape.

PREPARATION

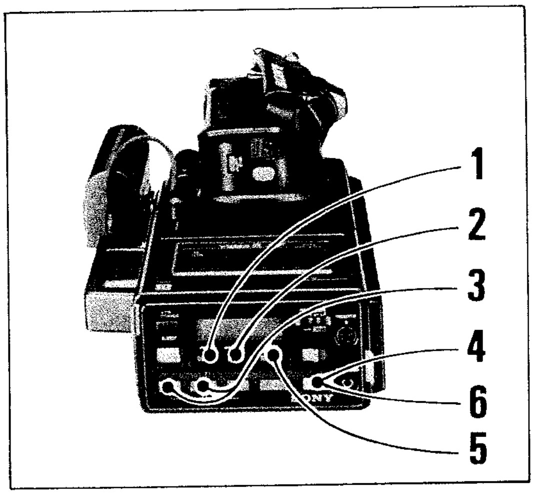
Make the necessary connections. For details on each connection and operation, refer to the corresponding page.

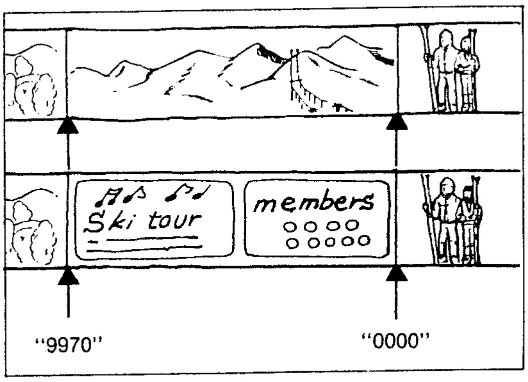
To insert camera recording [P.13]
Set the video camera recorder in the VTR-CAMERA mode by pressing the VTR POWER and CAMERA POWER switches.

To insert a TV programme [P.24]
Make the necessary connections as described in TV programme recording.

OPERATION N

N





Monitor the playback picture of the recorded tape on the viewfinder screen and decide where the insertion should be made.

1 Find the position for the end of the insert and press the RESET button. The counter returns to "0000".
2 Press the MEMORY button. The "MEMORY" mark appears on the display window.
3 Rewind the tape back a little further than the point where the insert should begin (e.g. "9970") by pressing the ◀◀ button during playback.
4 Release the ◀◀ button and press the ❚❚ button at the place the insert should begin. The unit is set in the playback pause mode.
5 Press the INSERT button. The unit is set in the insert pause mode. The ▶ lamp goes out and the INSERT and the ❚❚ lamp will light.
6 Play the inserting source of the connected equipment and:
For camera recording, press the START/STOP or the ❚❚ button.
For other recording, press the ❚❚ button.
The insert recording will start and the counter reading will increase.
The insert recording stops at the counter reading "0000" and the INSERT lamp goes out.

Instead of deciding the point where the insert should end, as described in step **1**, you may wish to continue the insertion and stop it at a suitable point while monitoring the inserted recording. In this case, start operating from step **3**. Proceed with the remaining steps and stop the insertion by pressing the ■ button.

When the pause mode lasts for approximately 7 minutes, the pause mode will be automatically released and the unit will be set in the stop mode.

1-13. NOTES ON MOISTURE CONDENSATION

MOISTURE INSIDE THE RECORDER SECTION

If the unit is brought directly from a cold to a warm location, moisture may condense on the drum assembly inside the unit. In this condition, the tape may adhere to the head drum. Take the cassette away.
To prevent possible damage under these circumstances, the recorder section is furnished with a moisture sensor. If moisture is present, the 💧 mark will blink when the power is turned on and the function buttons except for the EJECT button will not work. When a cassette has been inserted, the 💧 mark and the EJECT lamp will blink and the tape will be automatically unloaded.

If the 💧 mark blinks, eject the cassette and proceed as required.

When a battery pack is used as the power source
Turn off the unit and let the unit sit with the cassette compartment open until the moisture evaporates and the 💧 mark goes out when the power is turned on. In case the 💧 mark does not go out in a few hours, use an ac power adaptor or a dc pack as the power source.

When an ac power adaptor or a dc pack is used as the power source
Leave the recorder section turned on, so that the heater built in the recorder will activate to make the moisture evaporate.

When the moisture has completely evaporated, the 💧 mark will go out. Then operate the unit as usual.

Moisture on the tape
If a tape is brought directly from a cold to a warm location, moisture may condense on the surface of the tape. When the tape is inserted and a tape transport button (such as the ▶ button) is pressed, the EJECT lamp will blink and the function buttons except for the EJECT button will not work. In this case, the 💧 mark will not appear.

If the EJECT lamp blinks, eject the cassette and let the unit and the cassette sit until the moisture evaporates.

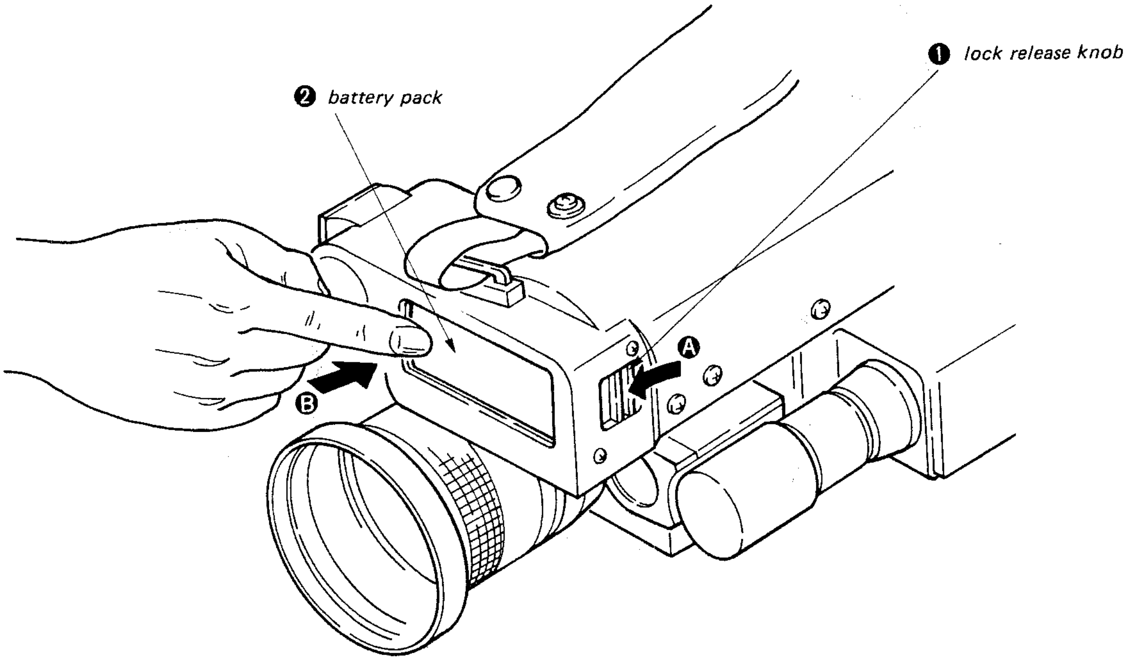
When to use
The unit can be used again if the EJECT lamp does not light when a cassette is inserted and a tape transport button is pressed.

Moisture condensation on the lens
Moisture may condense also on the lens when the recorder is brought in from a cold place to an extremely warm place, causing the lens to become dim. If this occurs, turn off the power and leave the recorder unused at least for an hour.

SECTION 2
DISASSEMBLY

2-1. REMOVAL OF THE BATTERY PACK

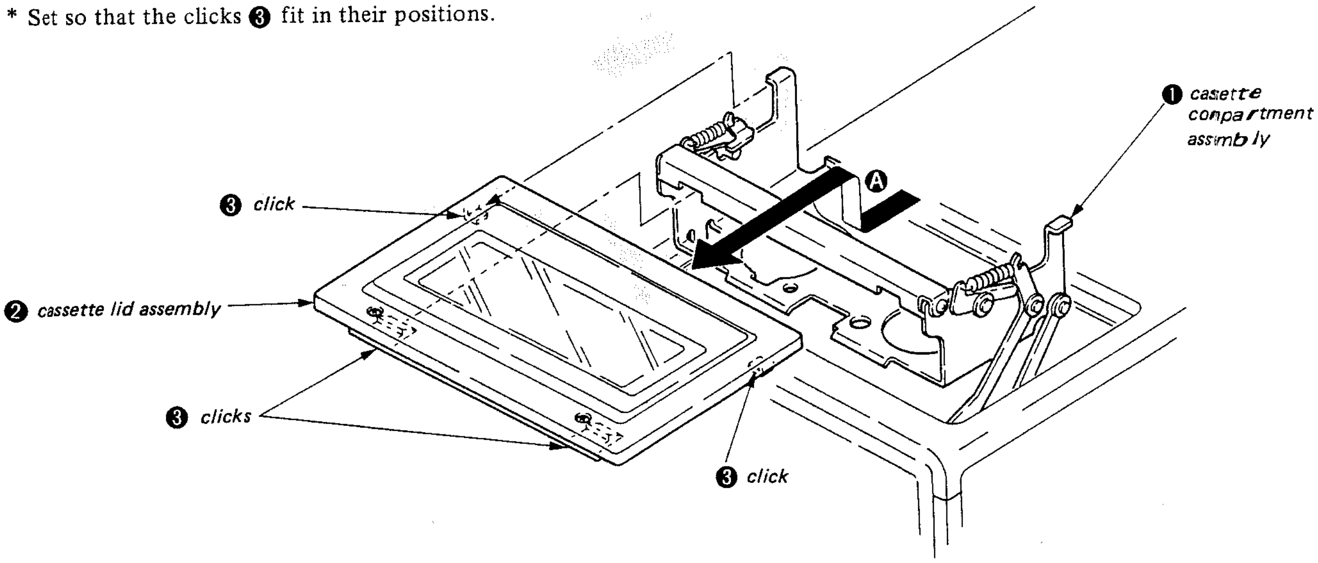
1) Press the lock release knob ❶ in the direction shown by the arrow Ⓐ and push the battery pack ❷ in the direction shown by the arrow Ⓑ until a clicking tone is audible.
2) Remove the battery pack ❷ pushed out by a spring force.


❷ battery pack
❶ lock release knob
Ⓐ
Ⓑ

2-2. REMOVAL OF THE CASSETTE LID ASSEMBLY

1) Turn on power and press the EJECT button to lift the cassette compartment assembly ❶ .
2) Slide the cassette lid assembly ❷ in the direction shown by the arrow Ⓐ and remove it.

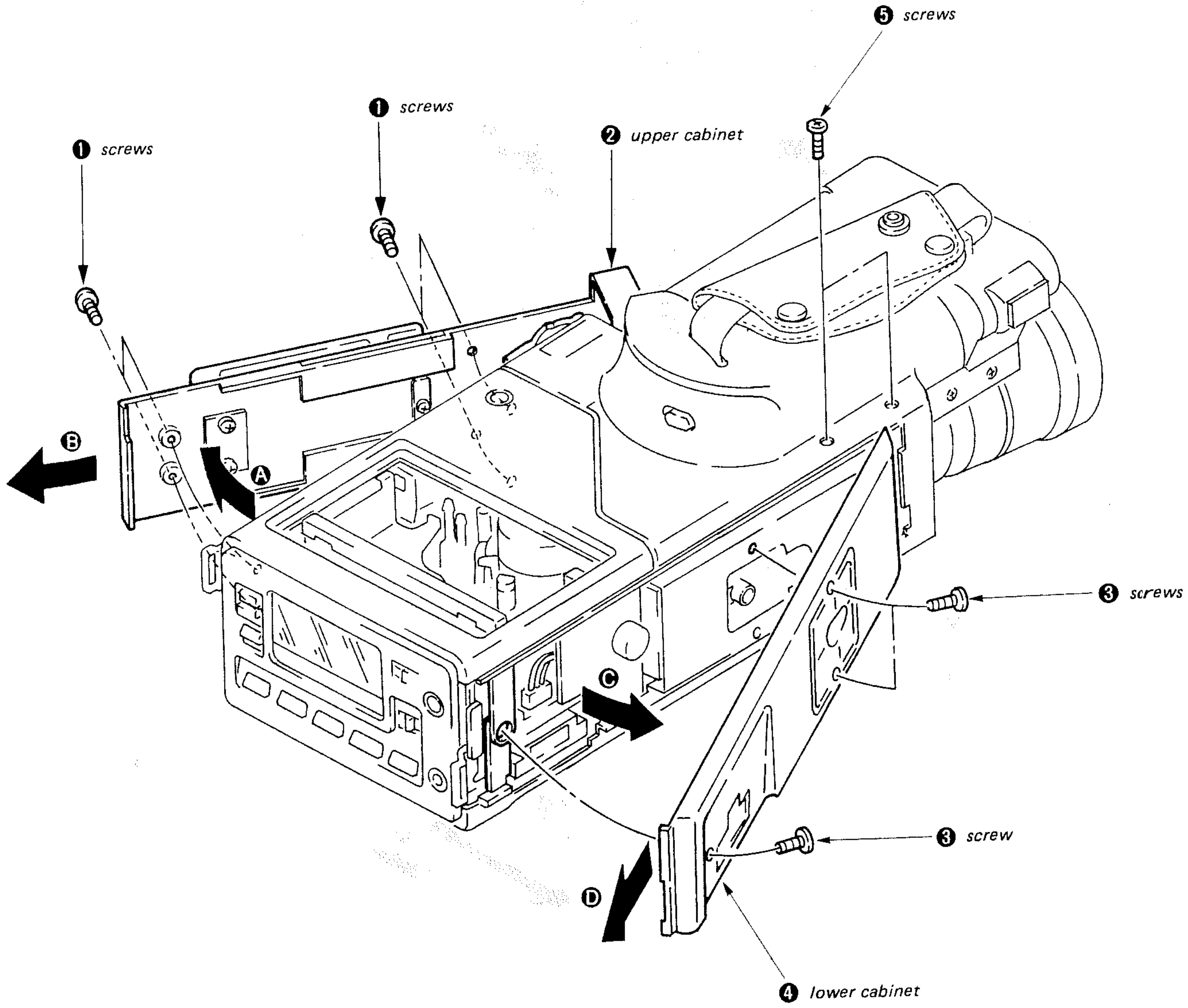
* Set so that the clicks ❸ fit in their positions.


❸ click
❷ cassette lid assembly
❸ clicks
❸ click
Ⓐ
❶ casette conpartment assmbly

2-3. REMOVAL OF THE CABINET

1) Remove the four screws ❶ .
2) Open the upper cabinet ❷ in the direction shown by the arrow 🅐 and remove it in the direction shown by the arrow 🅑 . Be careful not to break the wiring cord which connects the upper cabinet ❷ of the main unit.
3) Remove the three screws ❸ .
4) Open the lower cabinet ❹ in the direction shown by the arrow 🅒 and remove it in the direction shown by the arrow 🅓 .
5) Remove the two screws ❺ .

To next page


❺ screws
❶ screws
❶ screws
❷ upper cabinet
🅑
🅐
❸ screws
🅒
❸ screw
🅓
❹ lower cabinet

6) Remove the three screws ❻.

7) Remove the screw ❼ and remove the foot, rubber, radiation ❽.

8) Remove the left cabinet ❾.

9) Remove the two screws ❿ and remove the cabinet (YF) ⓫.

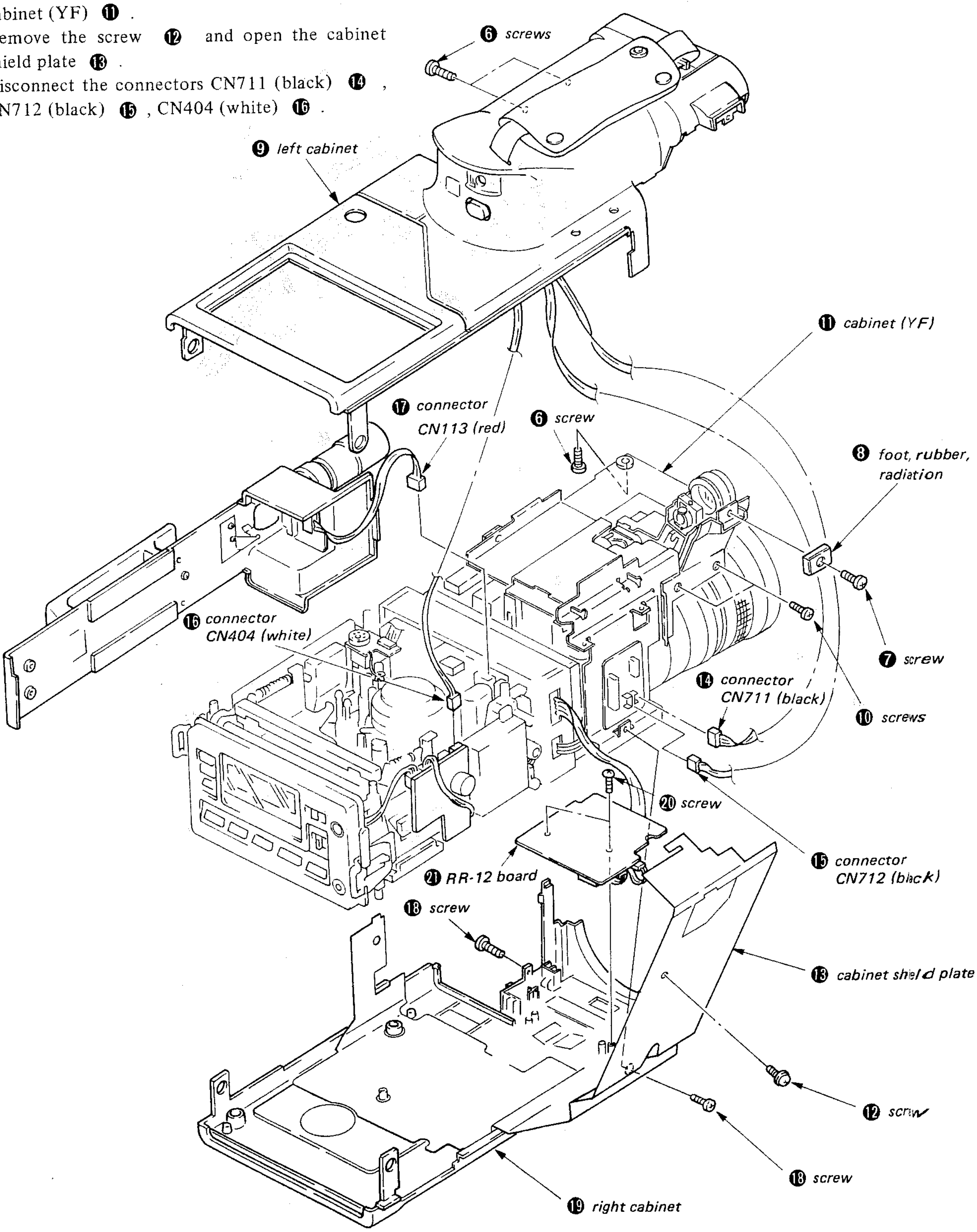
10) Remove the screw ⓬ and open the cabinet shield plate ⓭.

11) Disconnect the connectors CN711 (black) ⓮, CN712 (black) ⓯, CN404 (white) ⓰.

12) Disconnect the connector CN113 (red) ⓱.

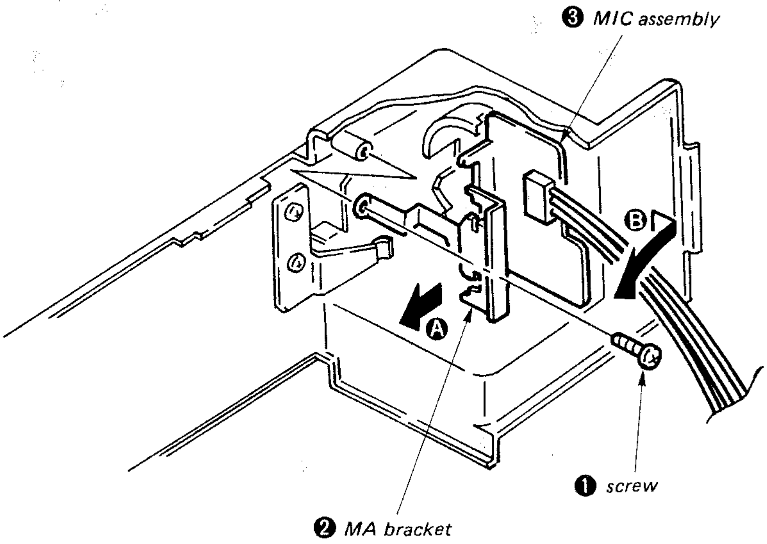
13) Remove the two screws ⓲ and remove the right cabinet ⓳.

14) Remove the two screws ⓴ and remove the RR-12 board ㉑.


❻ screws
❾ left cabinet
⓫ cabinet (YF)
⓱ connector CN113 (red)
❻ screw
❽ foot, rubber, radiation
⓰ connector CN404 (white)
❼ screw
⓮ connector CN711 (black)
❿ screws
⓴ screw
⓯ connector CN712 (black)
㉑ RR-12 board
⓲ screw
⓭ cabinet shield plate
⓬ screw
⓲ screw
⓳ right cabinet

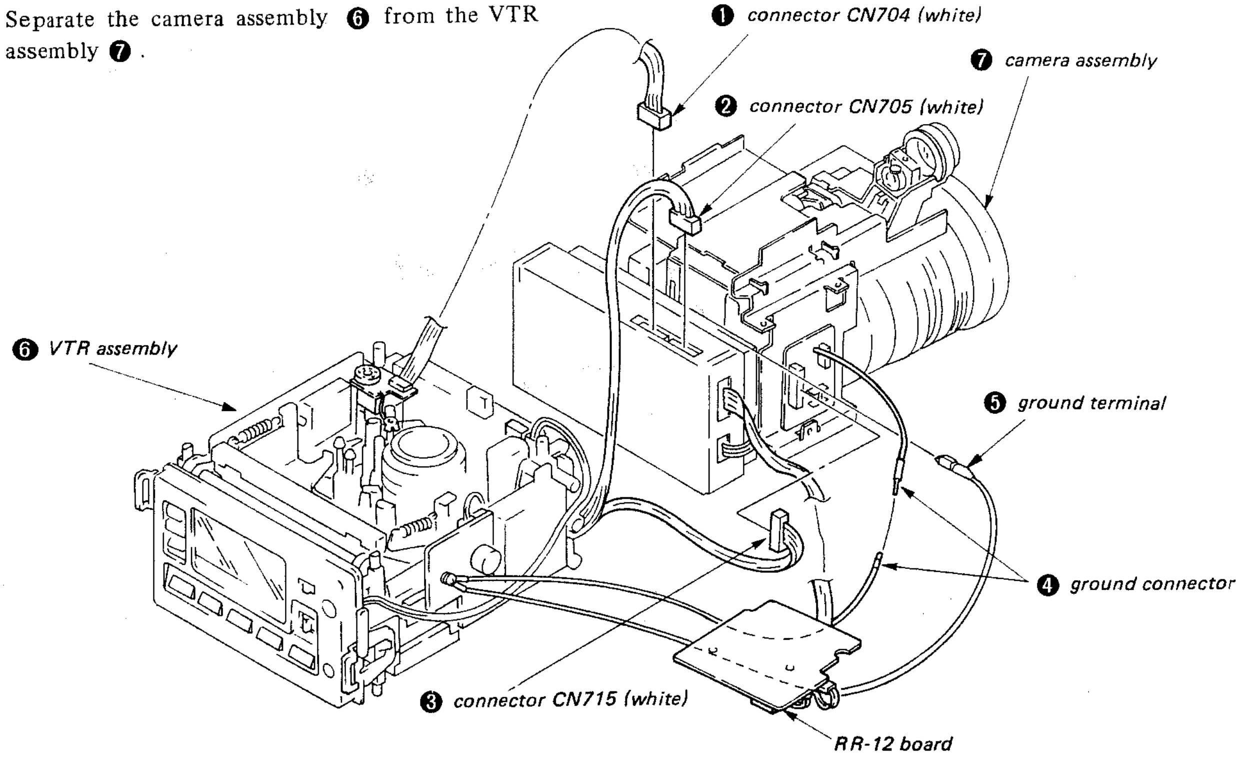
2-4. REMOVAL OF THE MIC ASSEMBLY

1) Remove the screw ❶.
2) Remove the MA bracket ❷ in the direction shown by the arrow Ⓐ .
3) Remove the MIC assembly ❸ in the direction shown by the arrow Ⓑ .


❸ MIC assembly
Ⓑ
Ⓐ
❶ screw
❷ MA bracket

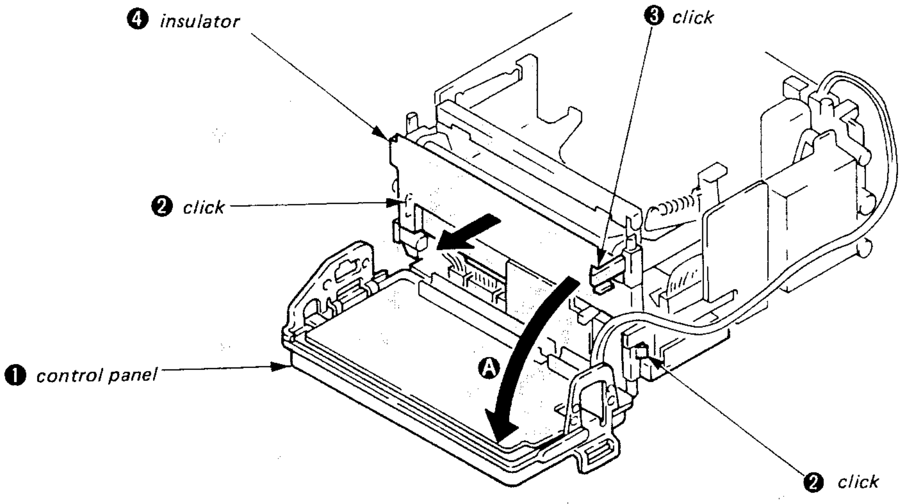
2-5. SEPARATION OF THE VTR ASSEMBLY AND CAMERA ASSEMBLY

1) Disconnect the connectors CN704 (white) ❶ , CN705 (white) ❷ and CN715 (white) ❸ .
2) Disconnect the ground connector ❹ and the ground terminal ❺ .
3) Separate the camera assembly ❻ from the VTR assembly ❼ .

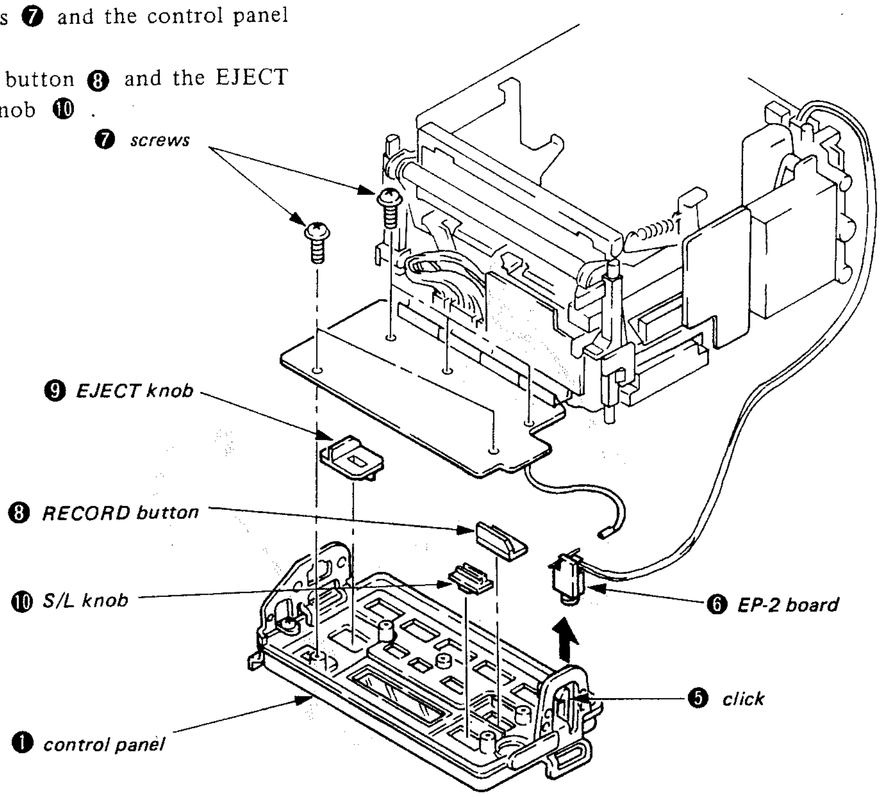

❶ connector CN704 (white)
❼ camera assembly
❷ connector CN705 (white)
❻ VTR assembly
❺ ground terminal
❹ ground connector
❸ connector CN715 (white)
RR-12 board

2-6. REMOVAL OF THE CONTROL PANEL

1) Disengage the strap mounting metal fittings on both right and left sides of the control panel ❶ from the two clicks ❷ .
2) Disengage the click ❸ and open the control panel ❶ with the printed circuit board in the direction shown by the arrow Ⓐ .
   (You will hear a teating sound, but this causes no problem.)
3) Remove the insulator ❹ .

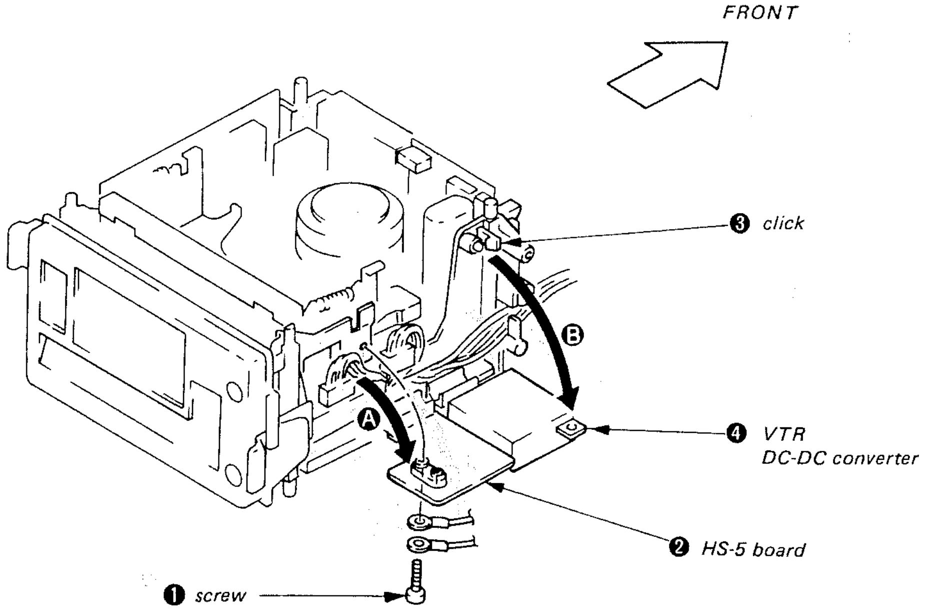

❹ insulator
❸ click
❷ click
❶ control panel
Ⓐ
❷ click

4) Disengage the click ❺ and remove the EP-2 board ❻ .
5) Remove the five screws ❼ and the control panel ❶ .
6) Remove the RECORD button ❽ and the EJECT knob ❾ and the S/L knob ❿ .


❼ screws
❾ EJECT knob
❽ RECORD button
❿ S/L knob
❻ EP-2 board
❺ click
❶ control panel

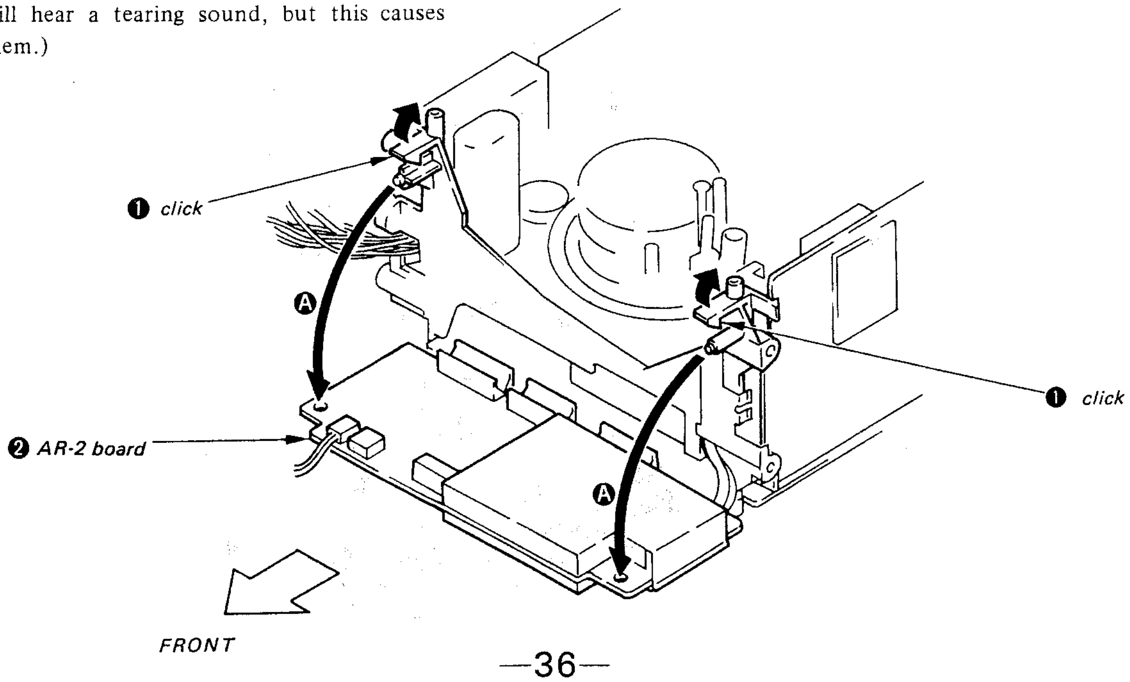
2-7. OPENING OF THE HS-5 BOARD AND THE DC-DC CONVERTER (VTR)

1) Remove the screw ❶ .
2) Open the HS-5 board ❷ in the direction shown by the arrow Ⓐ .
   (You will hear a tearing sound, but this causes no problem.)
3) Disengage the click ❸ and open the DC/DC converter ❹ in the direction shown by the arrow Ⓑ .
   (You will hear a tearing sound, but this causes no problem.)


FRONT
❸ click
Ⓑ
Ⓐ
❹ VTR DC-DC converter
❷ HS-5 board
❶ screw

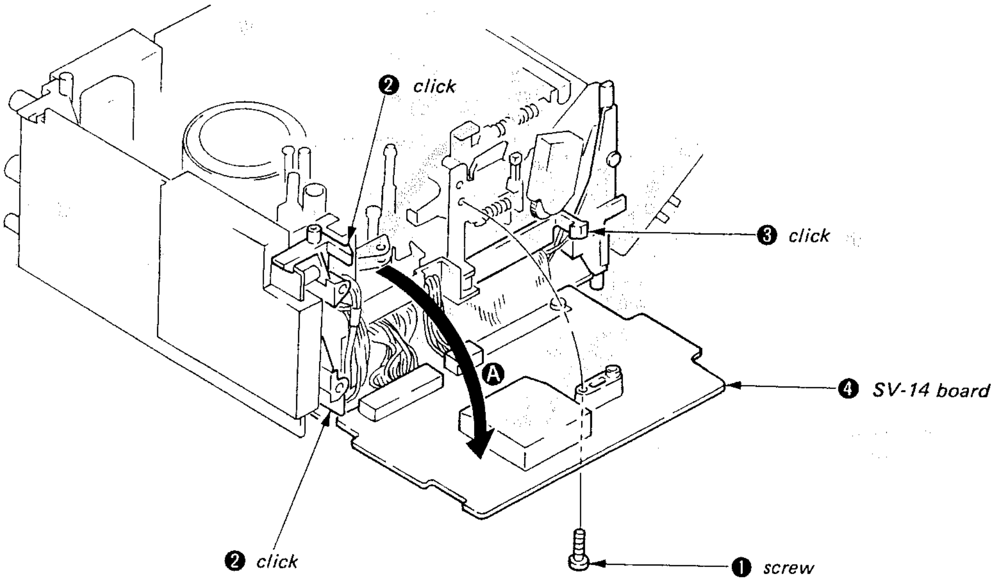
2-8. OPENING OF THE AR-2 BOARD

1) Disengage the two clicks ❶ from the AR-2 board ❷ .
2) Open the AR-2 board in the direction shown by the arrow Ⓐ .
   (You will hear a tearing sound, but this causes no problem.)


❶ click
Ⓐ
❷ AR-2 board
Ⓐ
❶ click
FRONT

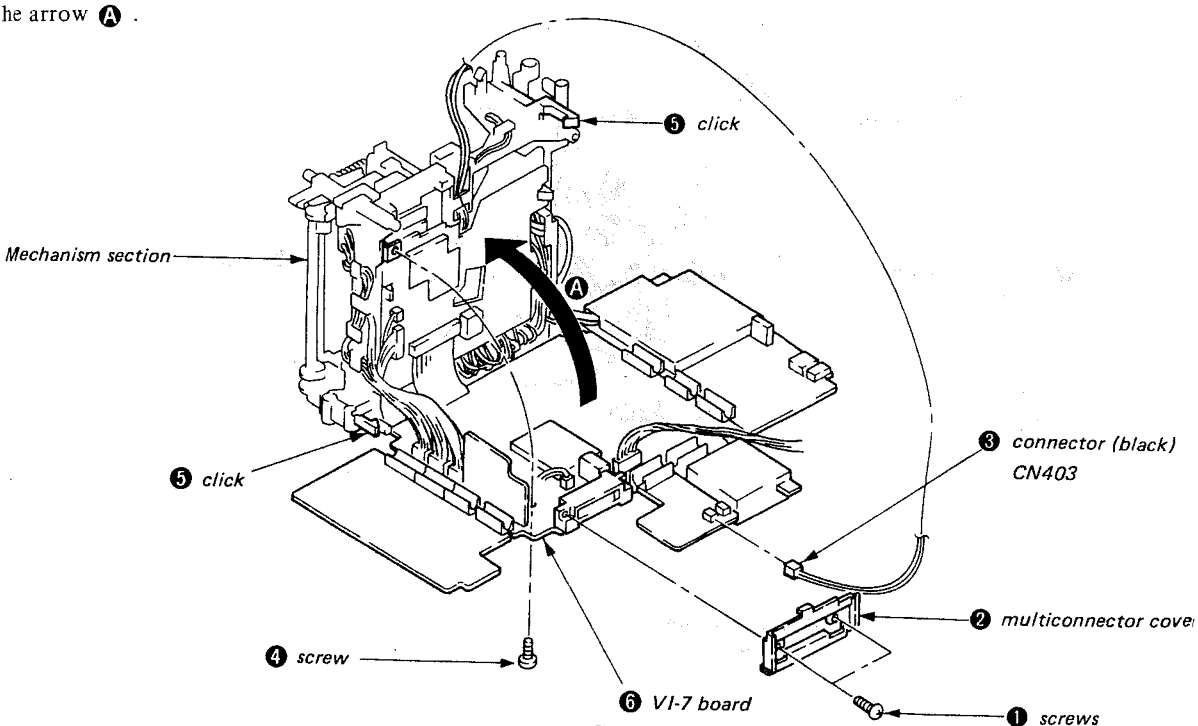
2-9. OPENING OF THE SV-14 BOARD

1) Remove the screw ❶ .
2) Disengage the two clicks ❷ .
3) Disengage the click ❸ and open the SV-14 board ❹ in the direction shown by the arrow Ⓐ .


❷ click
❸ click
Ⓐ
❹ SV-14 board
❷ click
❶ screw

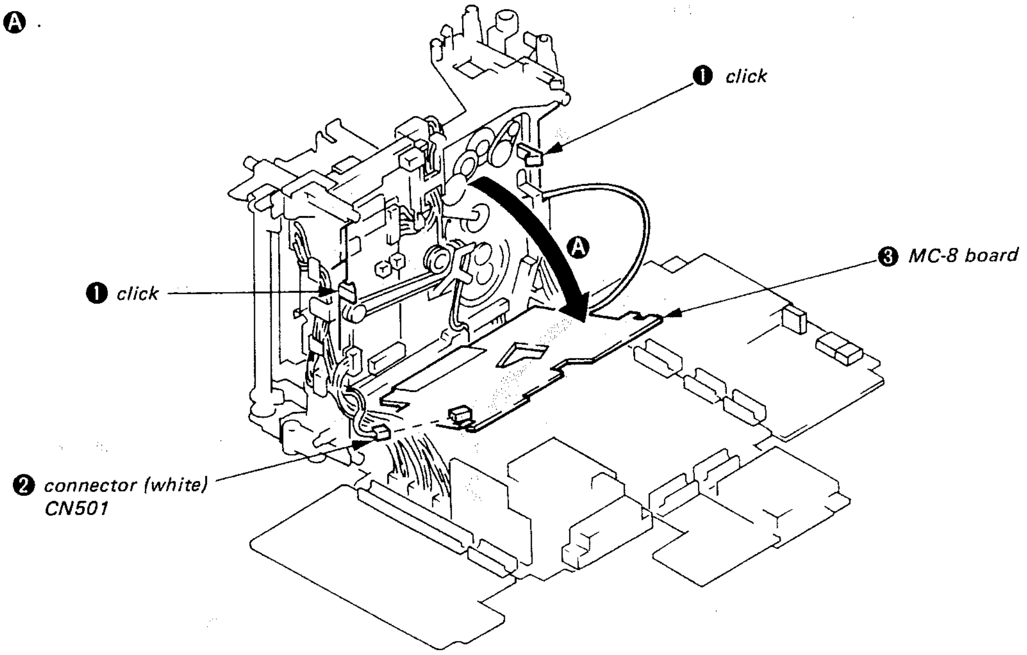
2-10. OPENING OF THE VI-7 BOARD

1) Remove the two screws ❶ and the multiconnector cover ❷.
2) Disconnect the connector CN403 (black) ❸ .
3) Remove the screw ❹ .
4) Disengage the two clicks ❺ from the VI-7 board ❻.
5) Open the VI-7 board ❻ in the direction shown by the arrow Ⓐ .


❺ click
Mechanism section
Ⓐ
❺ click
❸ connector (black) CN403
❷ multiconnector cove
❹ screw
❻ VI-7 board
❶ screws

2-11. REMOVAL OF THE MC-8 BOARD

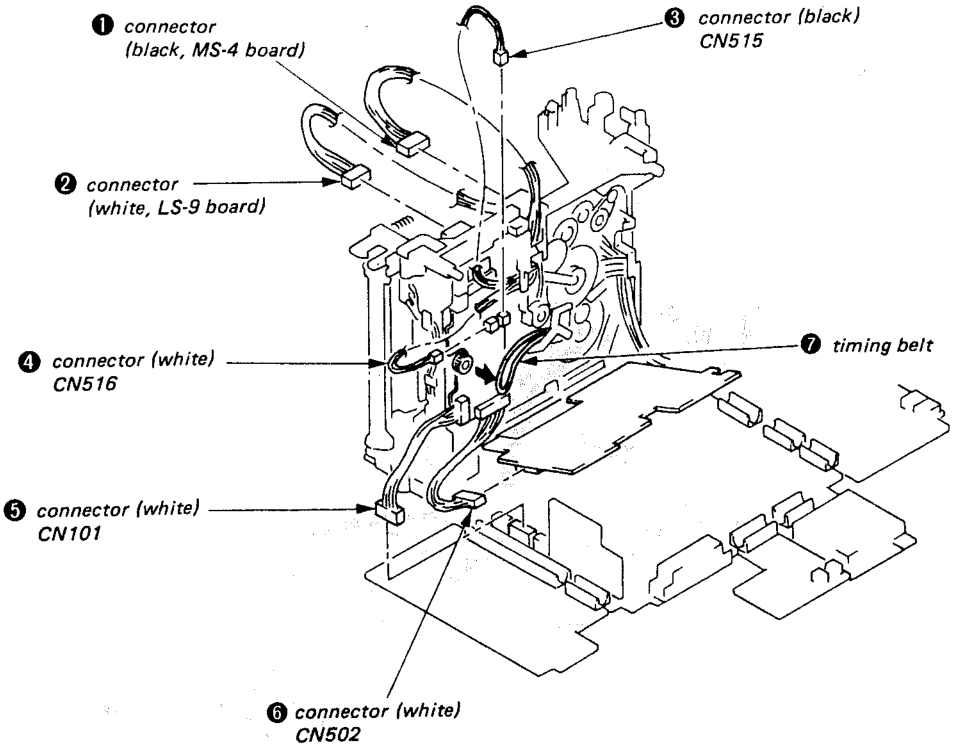
1) Disengage the two clicks ❶ .
2) Disconnect the connector CN501 (white) ❷ .
3) Remove the MC-8 board ❸ in the direction shown by the arrow Ⓐ .


❶ click
❸ MC-8 board
Ⓐ
❶ click
❷ connector (white) CN501

2-12. REMOVAL OF THE RS-5 BOARD

1) Disconnect the connectors ❶ to ❻ .
2) Remove the timing belt ❼ from the pulley.

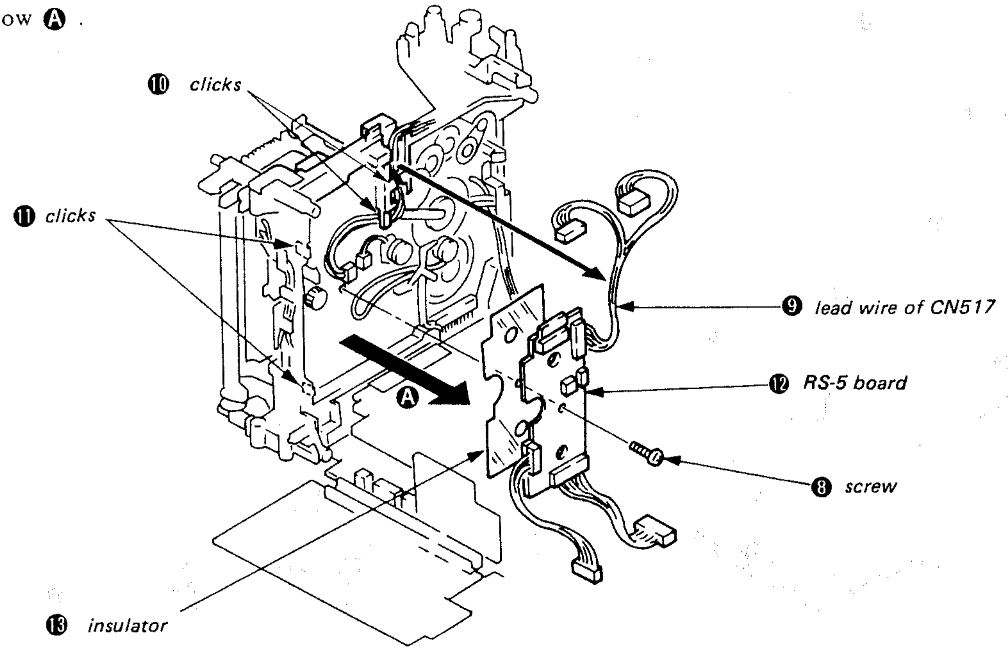
To next page


❶ connector (black, MS-4 board)
❸ connector (black) CN515
❷ connector (white, LS-9 board)
❼ timing belt
❹ connector (white) CN516
❺ connector (white) CN101
❻ connector (white) CN502

3) Remove the screw ❽ .

4) Release the lead wire of CN517 ❾ from the two clicks ❿ .

5) Disengage the two clicks ⓫ and remove the RS-5 board ⓬ and the insulator ⓭ in the direction shown by the arrow Ⓐ .

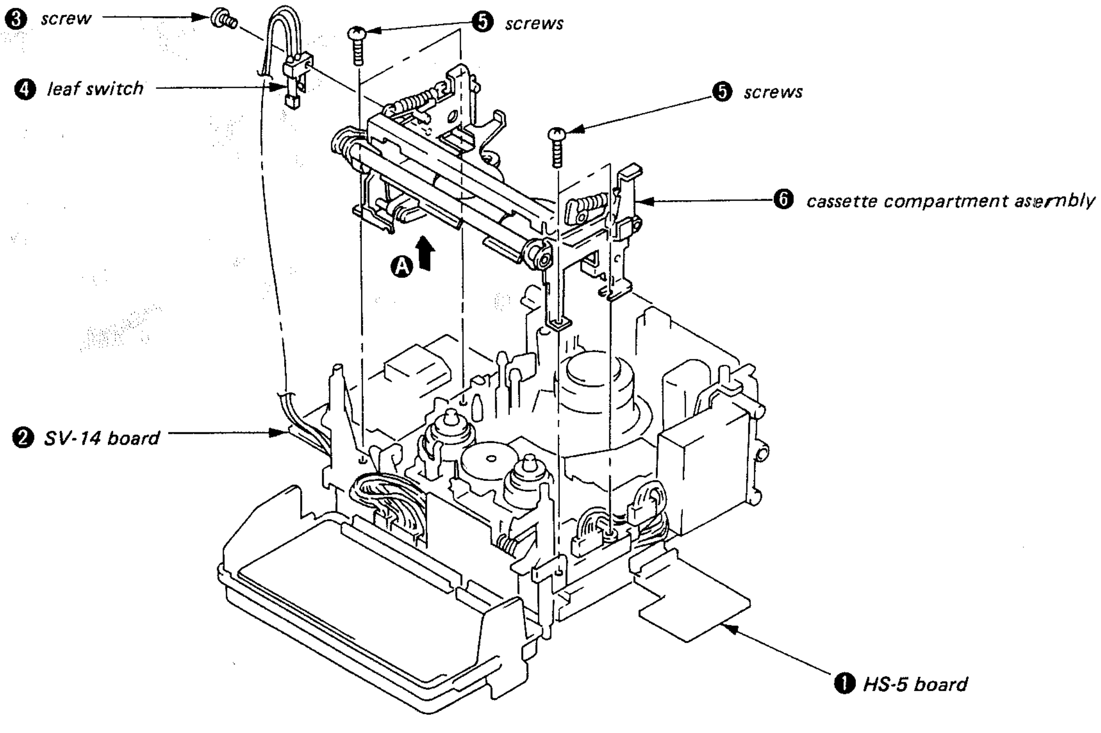

❿ clicks
⓫ clicks
❾ lead wire of CN517
⓬ RS-5 board
Ⓐ
❽ screw
⓭ insulator

2-13. REMOVAL OF THE CASSETTE COMPARTMENT ASSEMBLY

1) Perform the opening of the HS-5 board ❶ and the SV-14 board ❷ in advance.

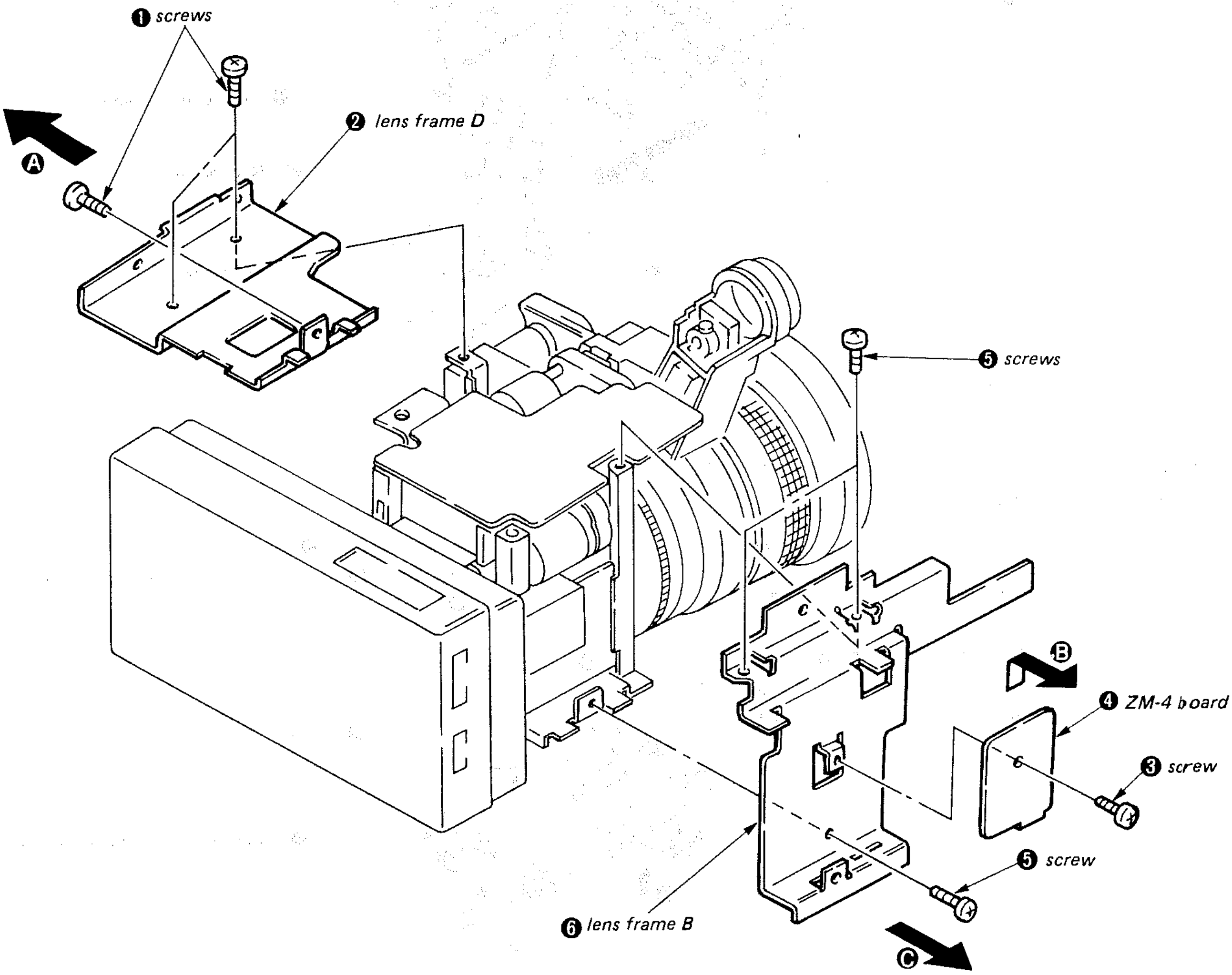
2) Remove the screw ❸ and the leaf switch ❹ .

3) Remove four screws ❺ and the cassette compartment assembly ❻ in the direction shown by the arrow Ⓐ .


❸ screw
❹ leaf switch
❺ screws
❺ screws
❻ cassette compartment assembly
Ⓐ
❷ SV-14 board
❶ HS-5 board

2-14. REMOVAL OF THE LENS FRAME B AND LENS FRAME D

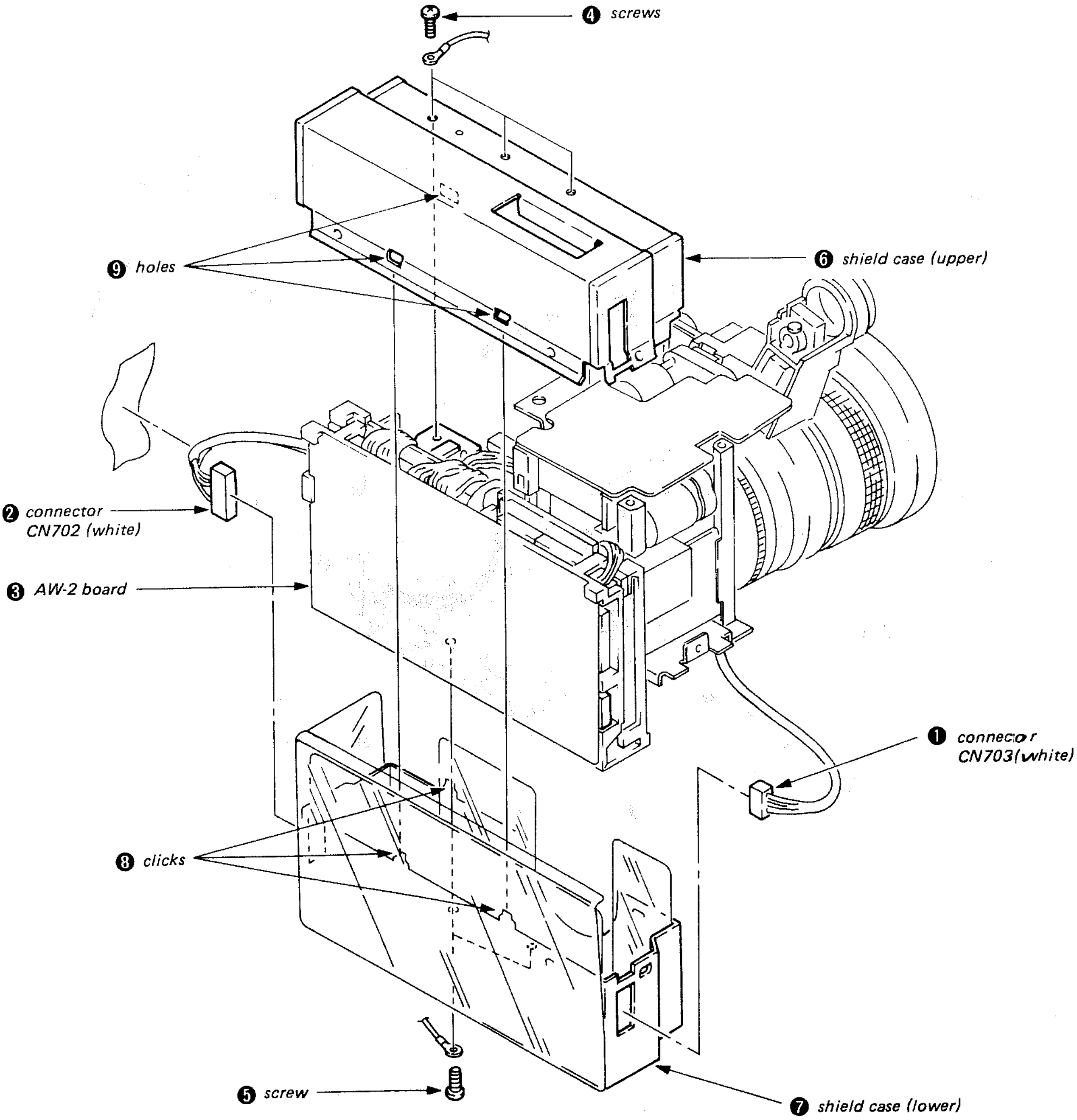
1) Remove the three screws ❶ and remove the lens frame D ❷ in the direction shown by the arrow Ⓐ.
2) Remove the screw ❸ and remove the ZM-4 board ❹ in the direction shown by the arrow Ⓑ.
3) Remove the three screws ❺ and remove the lens frame B ❻ in the direction shown by the arrow Ⓒ.


❶ screws
Ⓐ
❷ lens frame D
❺ screws
Ⓑ
❹ ZM-4 board
❸ screw
❺ screw
❻ lens frame B
Ⓒ

2-15. REMOVAL OF THE (UPPER AND LOWER) SHIELD CASES

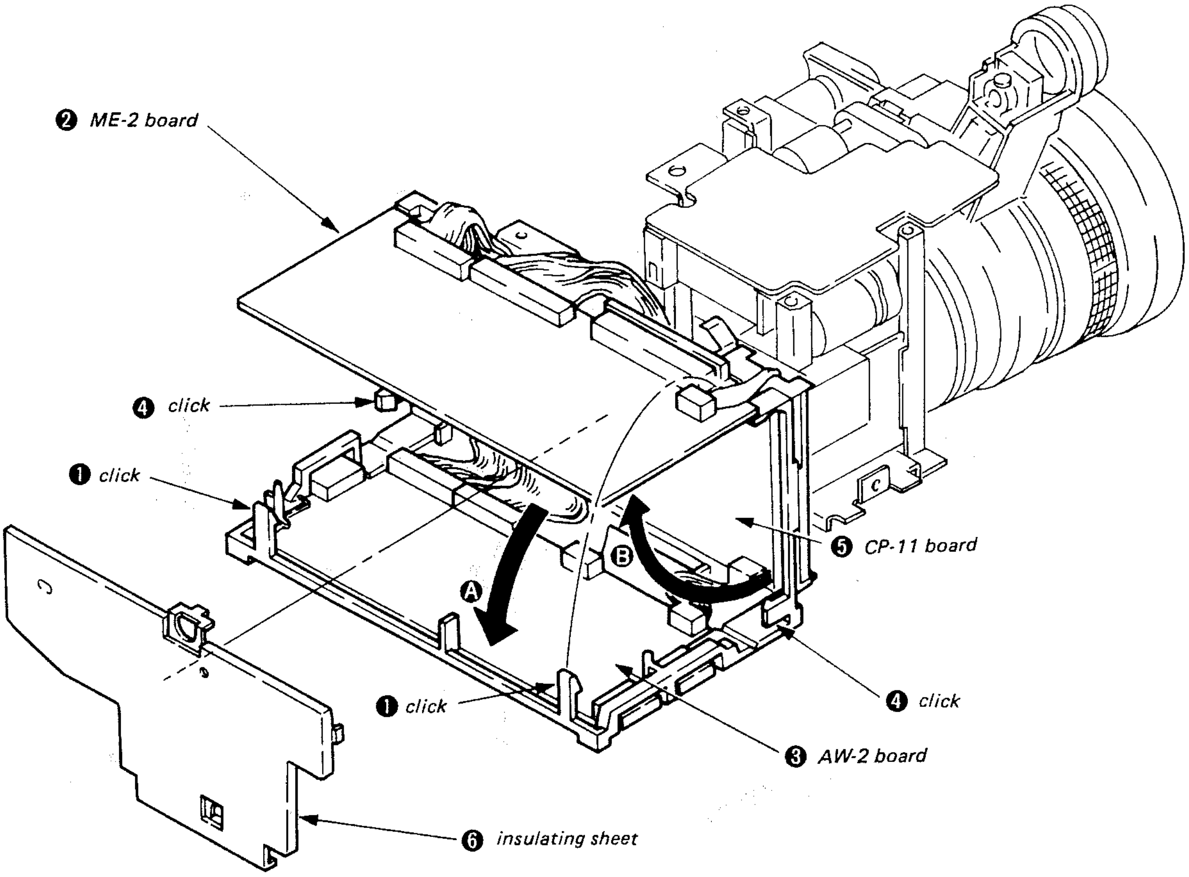
1) Disconnect the white connectors CN703 (white) ❶ and CN702 (white) ❷ from the AW-2 board ❸.
2) Remove the three screws ❹ and two screws ❺.
3) Separate the shield case into the upper part ❻ and the lower part ❼.

* When remounting the (upper and lower) shield case, put the clicks ❽ into the holes ❾.

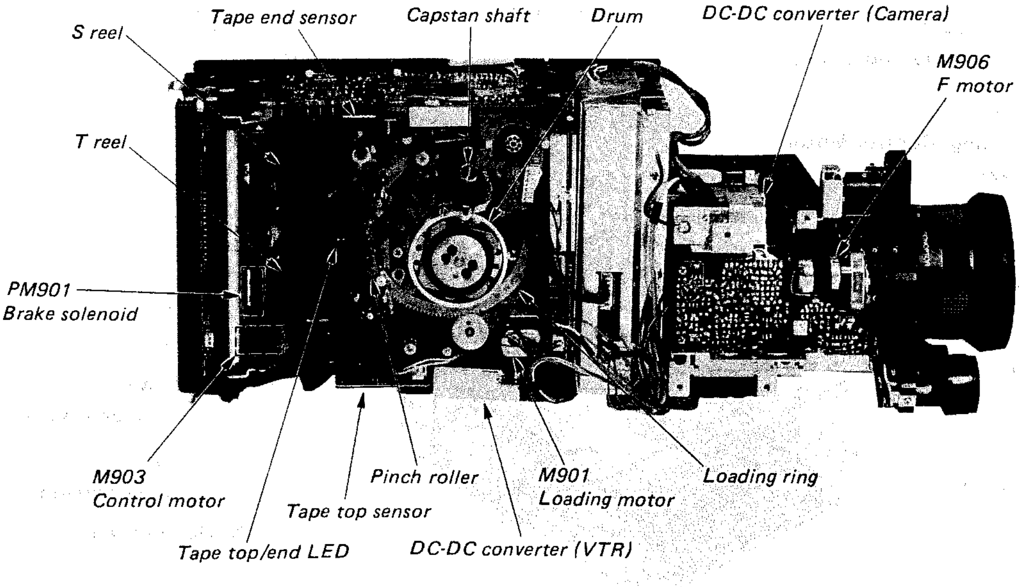

❹ screws
❻ shield case (upper)
❾ holes
❷ connector CN702 (white)
❸ AW-2 board
❶ connector CN703(white)
❽ clicks
❺ screw
❼ shield case (lower)

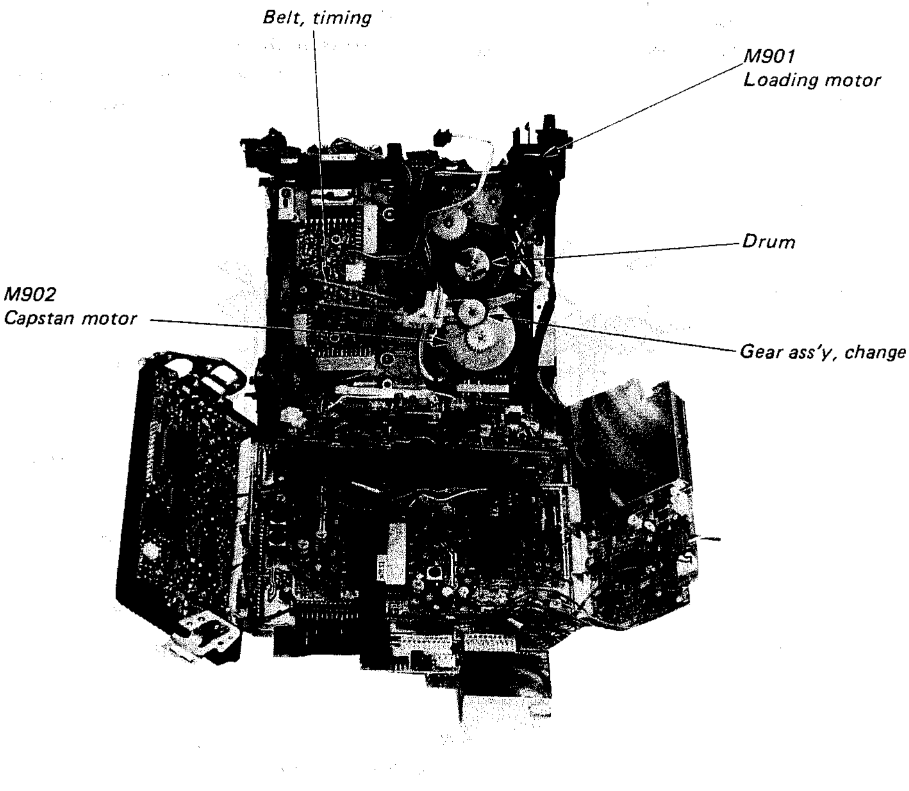
2-16. OPENING OF THE AW-2 AND THE ME-2 BOARDS

1) Disengage the two clicks ❶ from the ME-2 board ❷.
2) Open the AW-2 board ❸ in the direction shown by the arrow Ⓐ.
3) Disengage the two clicks ❹ from the ME-2 board ❷.
4) Lift the ME-2 board ❷ in the direction shown by the arrow Ⓑ.
5) Remove the insulating sheet ❻ from the CP-11 board ❺.


❷ ME-2 board
❹ click
❶ click
Ⓐ
Ⓑ
❺ CP-11 board
❹ click
❶ click
❸ AW-2 board
❻ insulating sheet

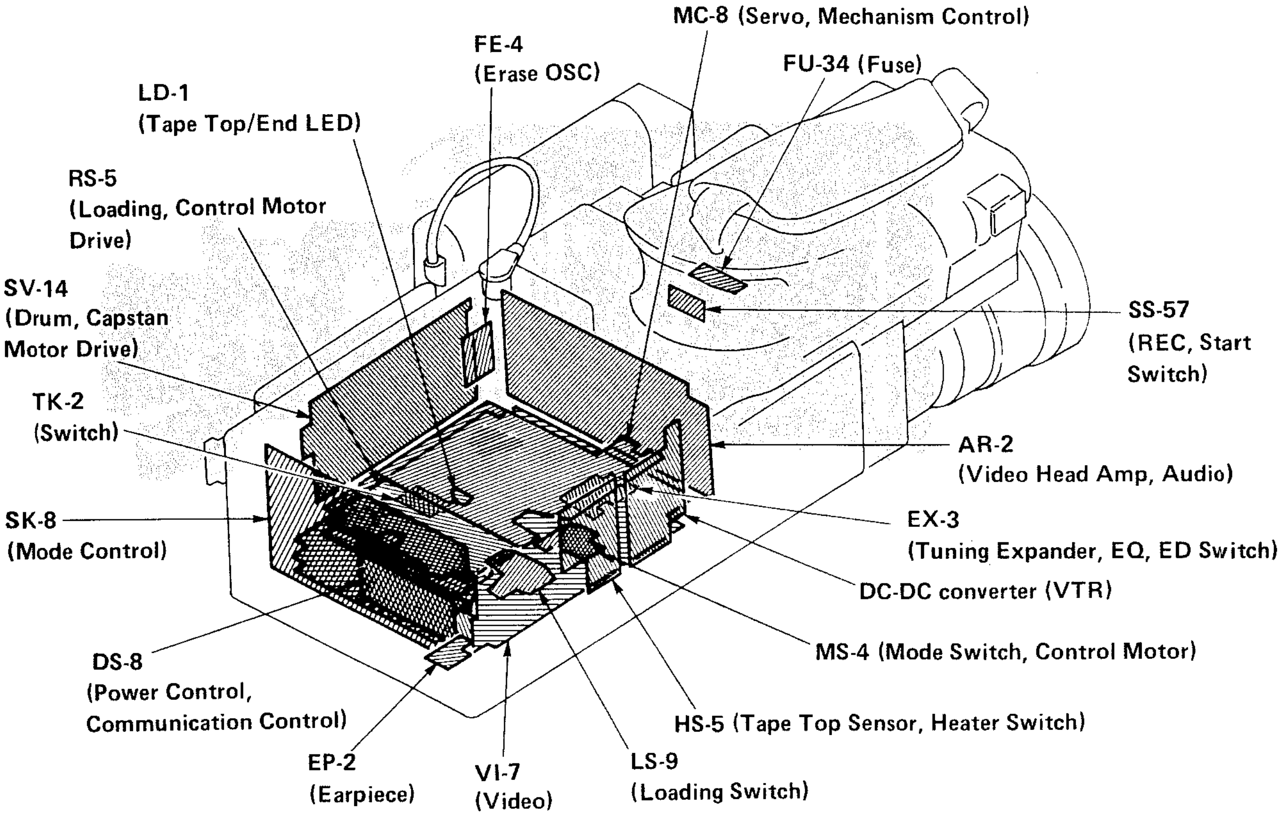
2-17. INTERNAL VIEW

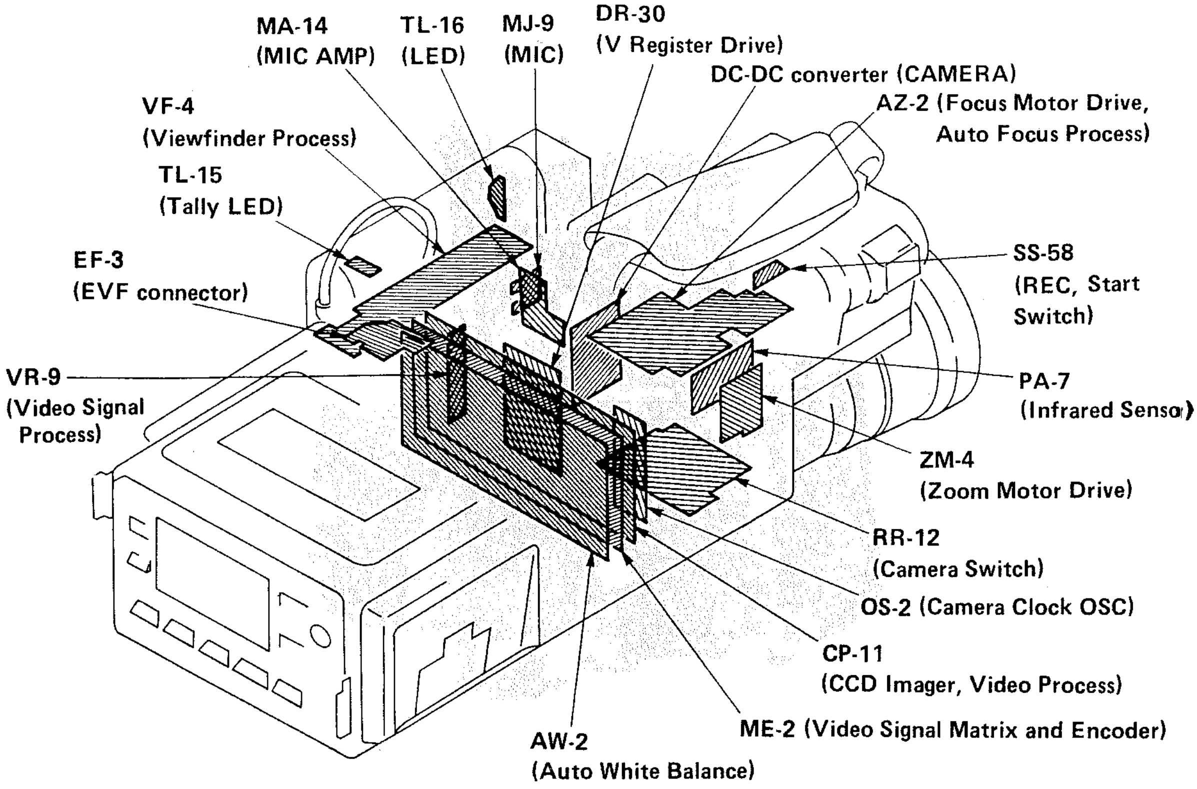

S reel
Tape end sensor
Capstan shaft
Drum
DC-DC converter (Camera)
M906
F motor
T reel
PM901
Brake solenoid
M903
Control motor
Pinch roller
M901
Loading motor
Loading ring
Tape top sensor
Tape top/end LED
DC-DC converter (VTR)


Belt, timing
M901
Loading motor
Drum
M902
Capstan motor
Gear ass'y, change

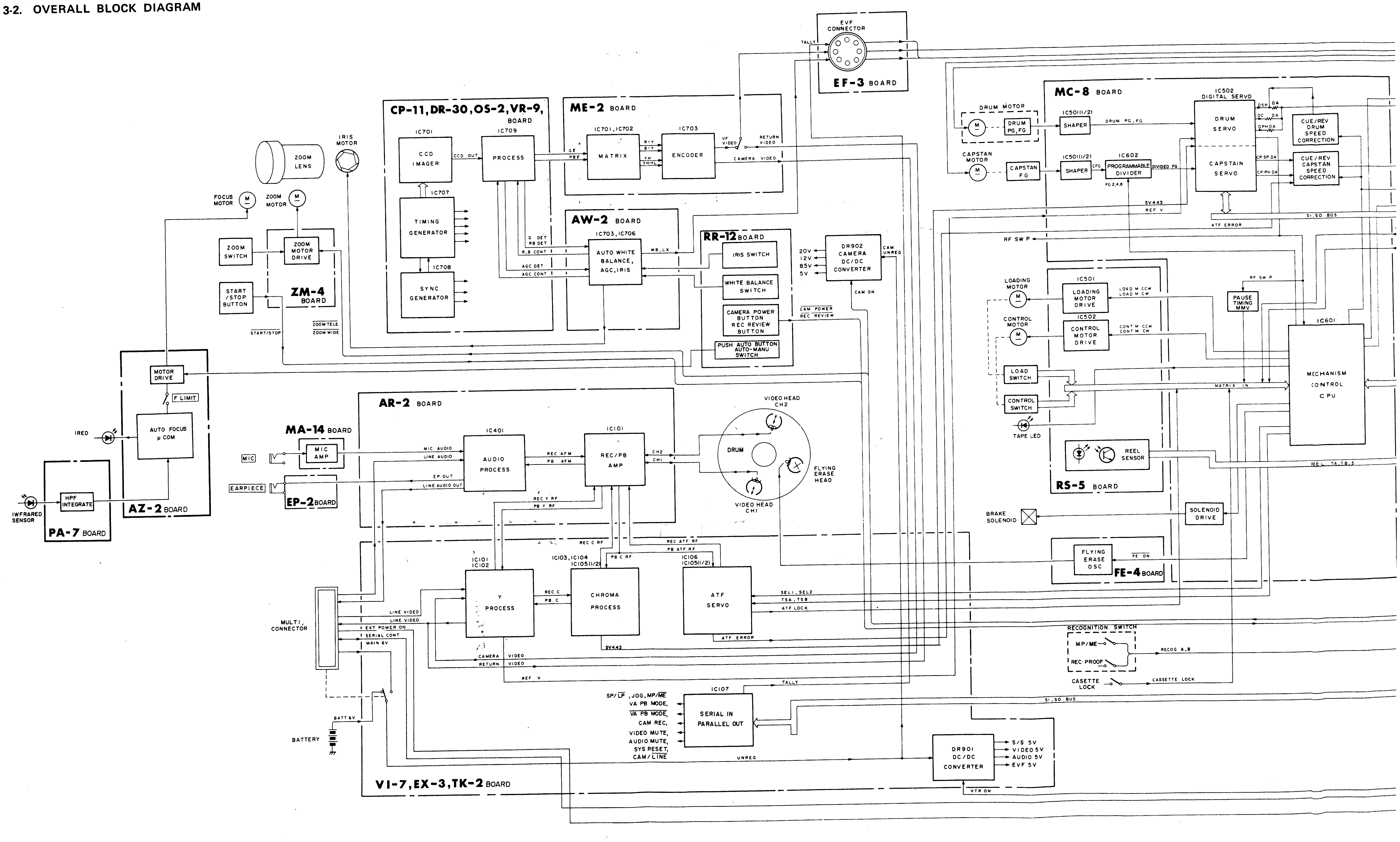
SECTION 3
DIAGRAMS

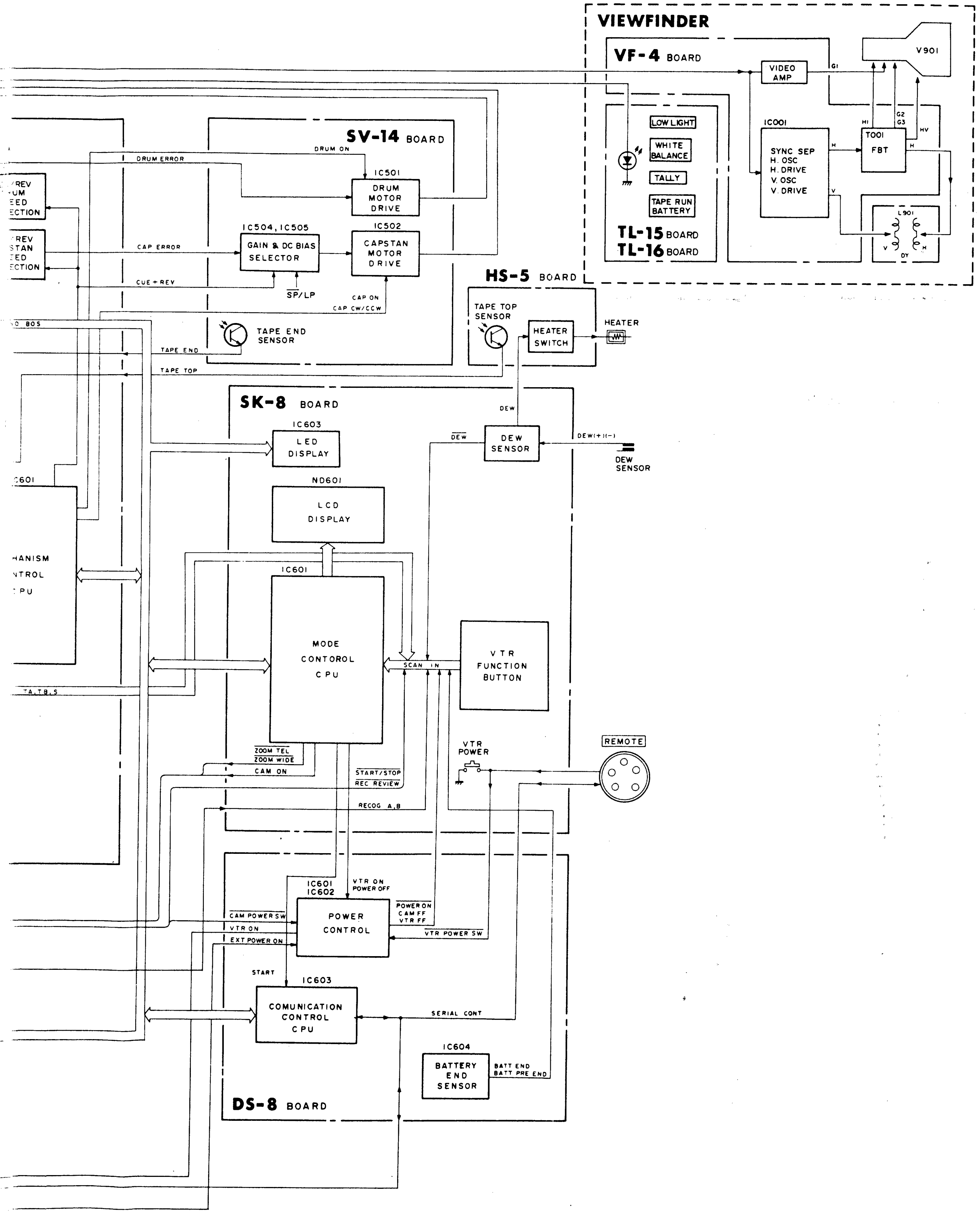
3-1. CIRCUIT BOARDS LOCATION


MC-8 (Servo, Mechanism Control)
FE-4
(Erase OSC)
FU-34 (Fuse)
LD-1
(Tape Top/End LED)
RS-5
(Loading, Control Motor
Drive)
SV-14
(Drum, Capstan
Motor Drive)
SS-57
(REC, Start
Switch)
TK-2
(Switch)
AR-2
(Video Head Amp, Audio)
EX-3
(Tuning Expander, EQ, ED Switch)
SK-8
(Mode Control)
DC-DC converter (VTR)
MS-4 (Mode Switch, Control Motor)
DS-8
(Power Control,
Communication Control)
HS-5 (Tape Top Sensor, Heater Switch)
EP-2
(Earpiece)
VI-7
(Video)
LS-9
(Loading Switch)

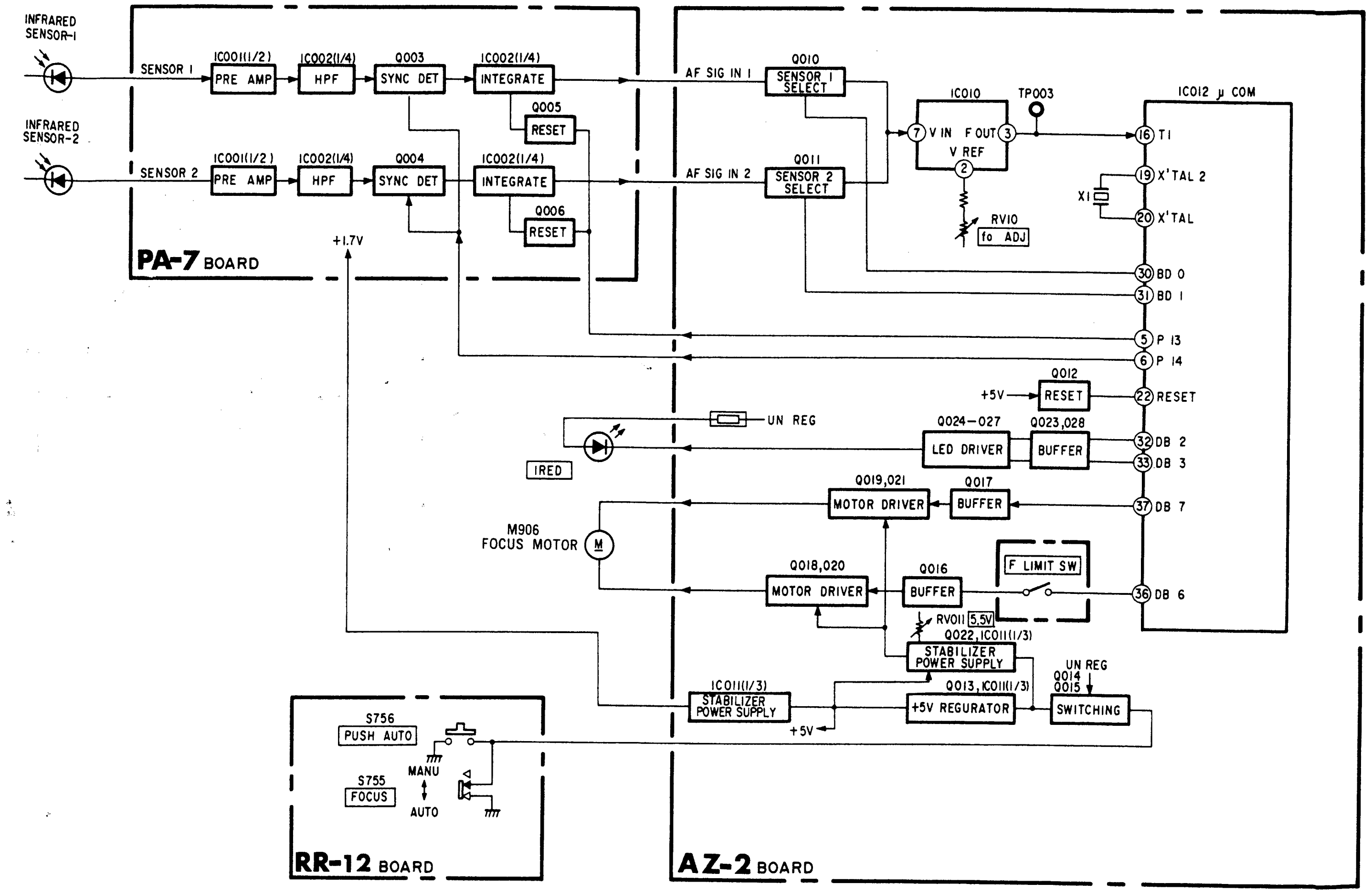

MA-14
(MIC AMP)
TL-16
(LED)
MJ-9
(MIC)
DR-30
(V Register Drive)
DC-DC converter (CAMERA)
AZ-2 (Focus Motor Drive,
Auto Focus Process)
VF-4
(Viewfinder Process)
TL-15
(Tally LED)
EF-3
(EVF connector)
SS-58
(REC, Start
Switch)
VR-9
(Video Signal
Process)
PA-7
(Infrared Sensor)
ZM-4
(Zoom Motor Drive)
RR-12
(Camera Switch)
OS-2 (Camera Clock OSC)
CP-11
(CCD Imager, Video Process)
AW-2
(Auto White Balance)
ME-2 (Video Signal Matrix and Encoder)

3-2. OVERALL BLOCK DIAGRAM

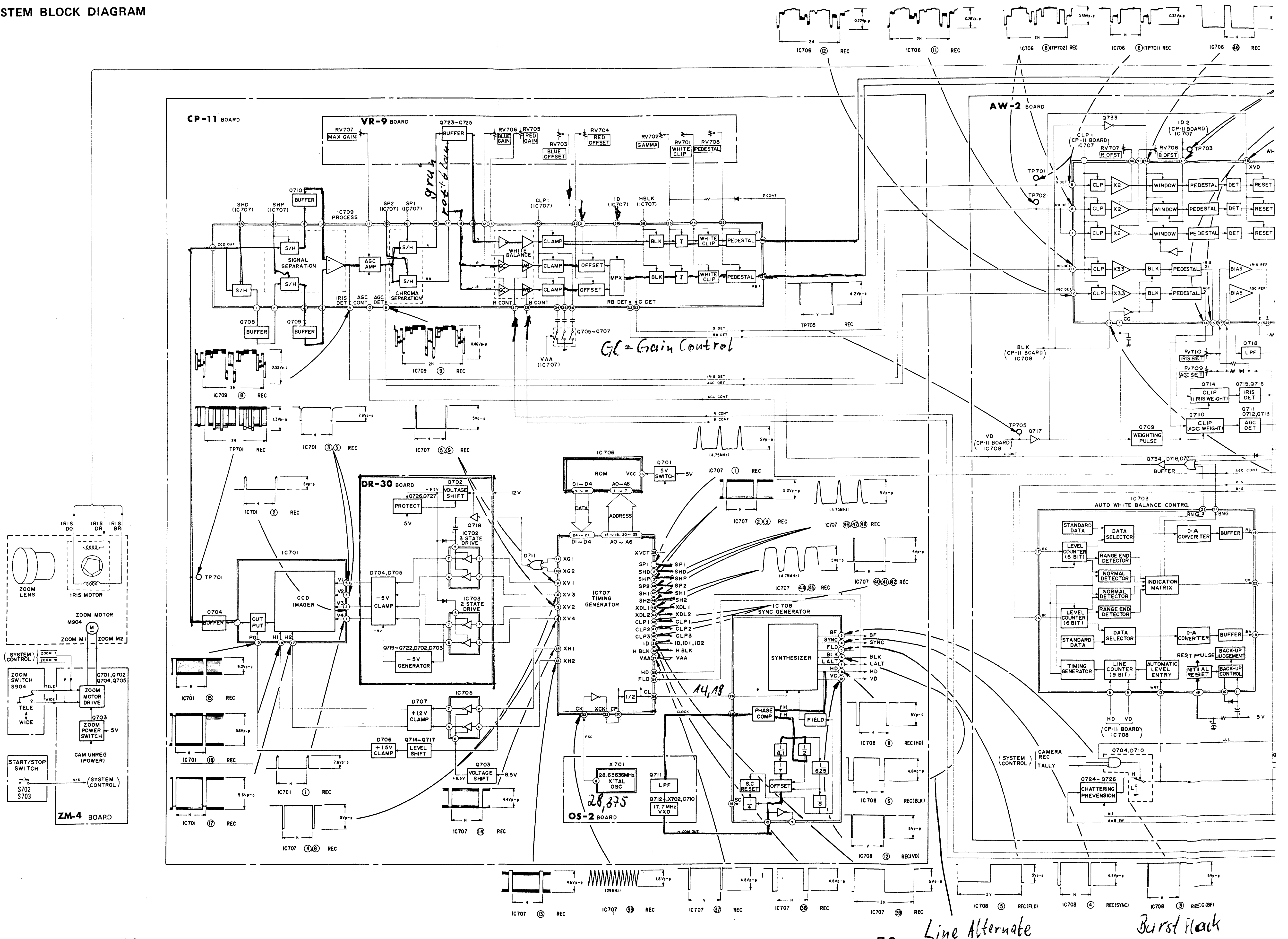

EVF CONNECTOR
TALLY
EF-3 BOARD
CP-11, DR-30, OS-2, VR-9, BOARD
IC701
CCD IMAGER
CCD OUT
IC709
PROCESS
IC707
TIMING GENERATOR
IC708
SYNC GENERATOR
G DET
RB DET
R, B CONT
AGC DET
AGC CONT
ME-2 BOARD
IC701, IC702
MATRIX
GY
PBY
R-Y
B-Y
YH
YH-YL
IC703
ENCODER
VF VIDEO
RETURN VIDEO
CAMERA VIDEO
AW-2 BOARD
IC703, IC706
AUTO WHITE BALANCE, AGC, IRIS
WB, LX
RR-12 BOARD
IRIS SWITCH
WHITE BALANCE SWITCH
CAMERA POWER BUTTON REC REVIEW BUTTON
PUSH AUTO BUTTON AUTO-MANU SWITCH
DR902 CAMERA DC/DC CONVERTER
20V
12V
8.5V
5V
CAM UNREG
CAM ON
CAM POWER
REC REVIEW
ZOOM LENS
IRIS MOTOR
FOCUS MOTOR
ZOOM MOTOR
ZOOM SWITCH
ZOOM MOTOR DRIVE
START /STOP BUTTON
ZM-4 BOARD
START/STOP
ZOOM TELE
ZOOM WIDE
MOTOR DRIVE
F LIMIT
AUTO FOCUS µ COM
IRED
AZ-2 BOARD
HPF INTEGRATE
IWFRARED SENSOR
PA-7 BOARD
MA-14 BOARD
MIC
MIC AMP
EARPIECE
EP-2 BOARD
AR-2 BOARD
IC401
AUDIO PROCESS
MIC AUDIO
LINE AUDIO
EP OUT
LINE AUDIO OUT
REC AFM
PB AFM
IC101
REC/PB AMP
CH2
CH1
VIDEO HEAD CH2
DRUM
FLYING ERASE HEAD
VIDEO HEAD CH1
REC Y RF
PB Y RF
REC C RF
PB C RF
REC ATF RF
PB ATF RF
IC101 IC102
Y PROCESS
IC103, IC104 IC105(1/2)
CHROMA PROCESS
REC C
PB C
IC106 IC105(1/2)
ATF SERVO
SEL1, SEL2
TSA, TSB
ATF LOCK
ATF ERROR
SV443
MULTI CONNECTOR
LINE VIDEO
LINE VIDEO
EXT POWER ON
SERIAL CONT
MAIN 6V
CAMERA VIDEO
RETURN VIDEO
REF V
BATT 6V
BATTERY
TALLY
IC107
SERIAL IN PARALLEL OUT
SP/LP, JOG, MP/ME
VA PB MODE,
VA PB MODE,
CAM REC,
VIDEO MUTE,
AUDIO MUTE,
SYS RESET,
CAM/LINE
UNREG
DR901 DC/DC CONVERTER
S/S 5V
VIDEO 5V
AUDIO 5V
EVF 5V
VTR ON
VI-7, EX-3, TK-2 BOARD
MC-8 BOARD
DRUM MOTOR
DRUM PG, FG
IC501(1/2)
SHAPER
DRUM PG, FG
CAPSTAN MOTOR
CAPSTAN FG
IC501(1/2)
SHAPER
CFG
IC602
PROGRAMMABLE DIVIDER
DIVIDED FG
FG 2,4,8
IC502 DIGITAL SERVO
DRUM SERVO
CAPSTAN SERVO
DSP DA
DC DA
DPH DA
CP SP DA
CP PH DA
CUE/REV DRUM SPEED CORRECTION
CUE/REV CAPSTAN SPEED CORRECTION
SV443
REF V
ATF ERROR
SI, SO BUS
RF SW P
RF SW P
PAUSE TIMING MMV
LOADING MOTOR
IC501
LOADING MOTOR DRIVE
LOAD M CCW
LOAD M CW
CONTROL MOTOR
IC502
CONTROL MOTOR DRIVE
CONT M CCW
CONT M CW
IC601
MECHANISM CONTROL CPU
LOAD SWITCH
CONTROL SWITCH
MATRIX IN
TAPE LED
REEL SENSOR
REEL TA, TB, S
RS-5 BOARD
BRAKE SOLENOID
SOLENOID DRIVE
FLYING ERASE OSC
FE ON
FE-4 BOARD
RECOGNITION SWITCH
MP/ME
REC-PROOF
RECOG A, B
CASETTE LOCK
CASSETTE LOCK
SI, SO BUS


VIEWFINDER
VF-4 BOARD
VIDEO AMP
V901
IC001
SYNC SEP
H. OSC
H. DRIVE
V. OSC
V. DRIVE
T001
FBT
L901
DY
LOW LIGHT
WHITE BALANCE
TALLY
TAPE RUN BATTERY
TL-15 BOARD
TL-16 BOARD
SV-14 BOARD
DRUM ON
DRUM ERROR
IC501
DRUM MOTOR DRIVE
IC504, IC505
GAIN & DC BIAS SELECTOR
IC502
CAPSTAN MOTOR DRIVE
CAP ERROR
CUE+REV
SP/LP
CAP ON
CAP CW/CCW
TAPE END SENSOR
TAPE END
TAPE TOP
HS-5 BOARD
TAPE TOP SENSOR
HEATER SWITCH
HEATER
SK-8 BOARD
IC603
LED DISPLAY
ND601
LCD DISPLAY
IC601
MODE CONTOROL CPU
DEW
DEW SENSOR
DEW(+11-)
DEW SENSOR
VTR FUNCTION BUTTON
SCAN IN
ZOOM TEL
ZOOM WIDE
CAM ON
START/STOP
REC REVIEW
RECOG A,B
VTR POWER
REMOTE
DS-8 BOARD
IC601
IC602
VTR ON
POWER OFF
POWER CONTROL
CAM POWER SW
VTR ON
EXT POWER ON
POWER ON
CAM FF
VTR FF
VTR POWER SW
START
IC603
COMUNICATION CONTROL CPU
SERIAL CONT
IC604
BATTERY END SENSOR
BATT END
BATT PRE END
HANISM
NTROL
PU
IC601
REV
UM
ED
ECTION
REV
STAN
ED
ECTION

3-3. AUTO FOCUS BLOCK DIAGRAM


INFRARED SENSOR-1
INFRARED SENSOR-2
SENSOR 1
SENSOR 2
IC001(1/2)
PRE AMP
IC002(1/4)
HPF
Q003
Q004
SYNC DET
IC002(1/4)
INTEGRATE
Q005
Q006
RESET
+1.7V
PA-7 BOARD
AF SIG IN 1
AF SIG IN 2
Q010
SENSOR 1 SELECT
Q011
SENSOR 2 SELECT
IC010
V IN
F OUT
V REF
TP003
RV10
fo ADJ
IC012 μ COM
T1
X'TAL 2
X1
X'TAL
BD 0
BD 1
P 13
P 14
Q012
+5V
RESET
UN REG
Q024-027
LED DRIVER
Q023,028
BUFFER
DB 2
DB 3
IRED
Q019,021
MOTOR DRIVER
Q017
BUFFER
DB 7
M906
FOCUS MOTOR
Q018,020
MOTOR DRIVER
Q016
BUFFER
F LIMIT SW
DB 6
RV011 5.5V
Q022, IC011(1/3)
STABILIZER POWER SUPPLY
IC011(1/3)
STABILIZER POWER SUPPLY
Q013, IC011(1/3)
+5V REGURATOR
UN REG
Q014
Q015
SWITCHING
+5V
S756
PUSH AUTO
S755
FOCUS
MANU
AUTO
RR-12 BOARD
AZ-2 BOARD

3-4. CAMERA SYSTEM BLOCK DIAGRAM


CP-11 BOARD
VR-9 BOARD
AW-2 BOARD
DR-30 BOARD
OS-2 BOARD
ZM-4 BOARD
RV707 MAX GAIN
Q723~Q725 BUFFER
RV706 BLUE GAIN
RV705 RED GAIN
RV703 BLUE OFFSET
RV704 RED OFFSET
RV702 GAMMA
RV701 WHITE CLIP
RV708 PEDESTAL
SHD (IC707)
SHP (IC707)
Q710 BUFFER
IC709 PROCESS
SP2 (IC707)
SP1 (IC707)
CLP1 (IC707)
ID (IC707)
HBLK (IC707)
CCD OUT
S/H
SIGNAL SEPARATION
AGC AMP
CHROMA SEPARATION
WHITE BALANCE
CLAMP
OFFSET
MPX
BLK
γ
WHITE CLIP
PEDESTAL
IRIS DET
AGC CONT
AGC DET
R CONT
B CONT
RB DET
G DET
Q708 BUFFER
Q709 BUFFER
Q705~Q707
VAA (IC707)
G DET
RB DET
IRIS DET
AGC DET
AGC CONT
R CONT
B CONT
TP705
IC709 ⑧ REC
IC709 ⑨ REC
TP701 REC
IC701 ③⑤ REC
IC707 ⑤⑨ REC
IC701 ② REC
IC701 ⑮ REC
IC701 ⑱ REC
IC701 ① REC
IC701 ⑰ REC
IC707 ④⑧ REC
IC707 ⑭ REC
IC707 ① REC
IC707 ②③ REC
IC707 ㊻㊼㊽ REC
IC707 ㊹㊺ REC
IC707 ㊵㊶㊷ REC
IC707 ⑬ REC
IC707 ㉝ REC
IC707 ㊲ REC
IC707 ㊳ REC
IC707 ㊴ REC
IC708 ⑧ REC(HD)
IC708 ⑥ REC(BLK)
IC708 ⑫ REC(VD)
IC708 ⑤ REC(FLD)
IC708 ④ REC(SYNC)
IC708 ③ REC(BF)
IC706 ⑫ REC
IC706 ⑪ REC
IC706 ⑧(TP702) REC
IC706 ⑥(TP701) REC
IC706 ⑭ REC
IC701
CCD IMAGER
V1 V2 V3 V4
OUT PUT
PG H1 H2
Q704 BUFFER
TP 701
Q702 VOLTAGE SHIFT
Q726,Q727 PROTECT
Q718
IC702 3 STATE DRIVE
IC703 2 STATE DRIVE
D704,D705 -5V CLAMP
Q719~Q722,D702,D703 -5V GENERATOR
D707 +12V CLAMP
IC705
D706 +1.5V CLAMP
Q714~Q717 LEVEL SHIFT
Q703 VOLTAGE SHIFT
12V
8.5V
D711
IC706 ROM
D1~D4
A0~A6
DATA
ADDRESS
Q701 5V SWITCH
5V
IC707 TIMING GENERATOR
XG1 XG2 XV1 XV3 XV2 XV4 XH1 XH2
XVCT
SP1 SHD SHP SP2 SH1 SH2 XDL1 XDL2 CLP1 CLP2 CLP3 ID HBLK VAA HD FLD CL
ID,ID1,ID2
H BLK
CK XCK CP
1/2
CLOCK
FSC
X701 28.63636MHz X'TAL OSC
Q711 LPF
Q712,X702,D710 17.7MHz VXO
IC708 SYNC GENERATOR
SYNTHESIZER
PHASE COMP
FIELD
S.C RESET
OFFSET
BF SYNC FLD BLK LALT HD VD
H COM OUT
ZOOM LENS
IRIS DD DR BR
IRIS MOTOR
ZOOM MOTOR M904
ZOOM M1
ZOOM M2
(SYSTEM CONTROL)
ZOOM SWITCH S904
TELE
WIDE
Q701,Q702 Q704,Q705 ZOOM MOTOR DRIVE
Q703 ZOOM POWER SWITCH
CAM UNREG (POWER)
START/STOP SWITCH
S702 S703
(SYSTEM CONTROL)
Q733
ID2 (CP-11 BOARD) IC707
CLP1 (CP-11 BOARD) IC707
RV707 R OFST
RV706 B OFST
TP703
TP701
TP702
XVD
CLP
X2
WINDOW
PEDESTAL
DET
RESET
X3.3
BLK
BIAS
IRIS REF
AGC REF
CG
BLK (CP-11 BOARD) IC708
RV710 IRIS SET
RV709 AGC SET
Q718 LPF
Q714 CLIP (IRIS WEIGHT)
Q715,Q716 IRIS DET
Q710 CLIP AGC WEIGHT
Q711 Q712,Q713 AGC DET
Q709 WEIGHTING PULSE
VD (CP-11 BOARD) IC708
TP705
Q717
Q734 D716,D717 BUFFER
IC703 AUTO WHITE BALANCE CONTROL
STANDARD DATA
DATA SELECTOR
D-A CONVERTER
BUFFER
LEVEL COUNTER (6 BIT)
RANGE END DETECTOR
NORMAL DETECTOR
INDICATION MATRIX
TIMING GENERATOR
LINE COUNTER (9 BIT)
AUTOMATIC LEVEL ENTRY
INITIAL RESET
BACK-UP JUDGEMENT
BACK-UP CONTROL
RESET PULSE
HD VD (CP-11 BOARD) IC708
(SYSTEM CONTROL)
CAMERA REC
TALLY
Q704,Q710
Q724~Q726 CHATTERING PREVENSION
AWB SW

grau

rot/blau

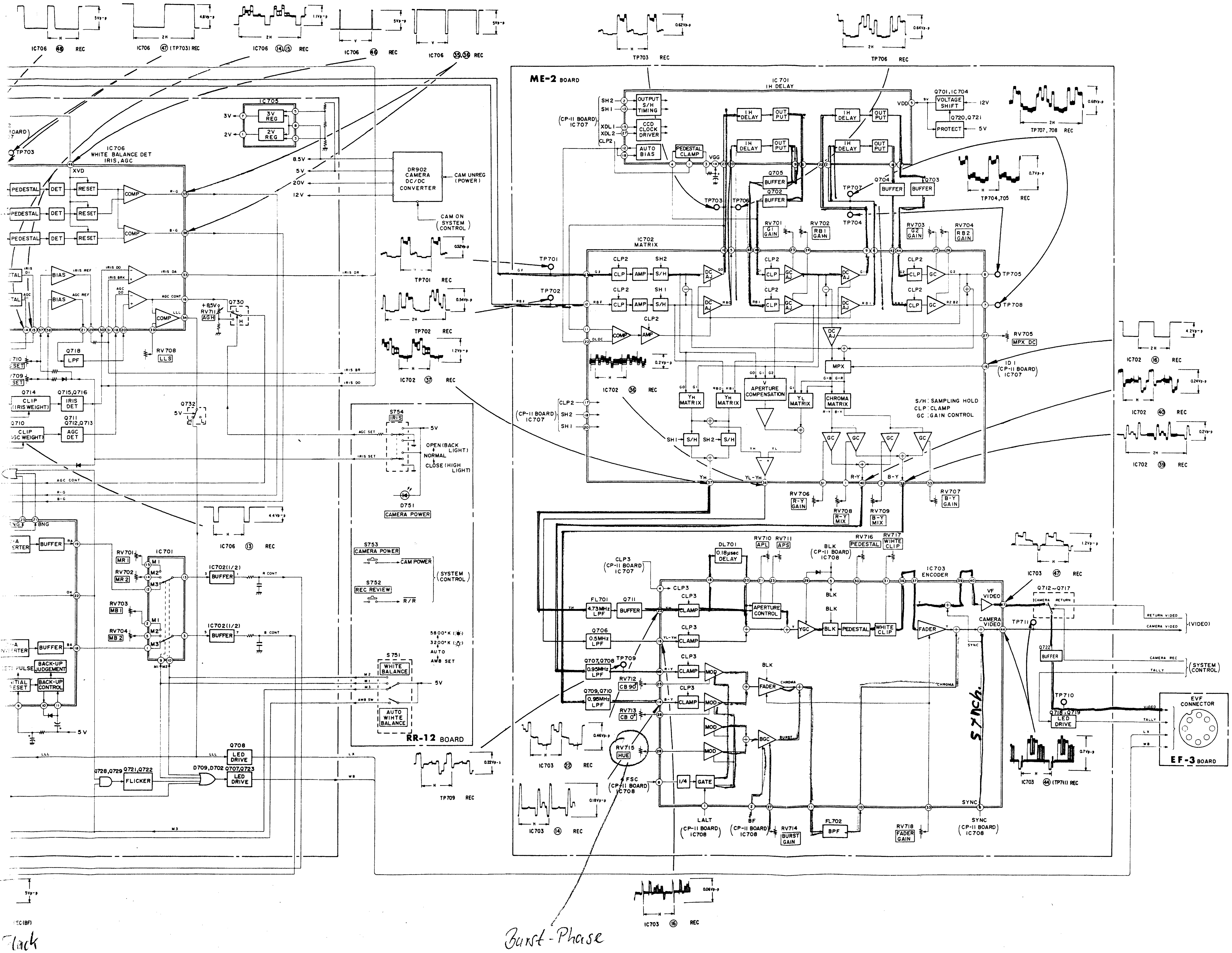
GC = Gain Control

28,375

14,18

Line Alternate

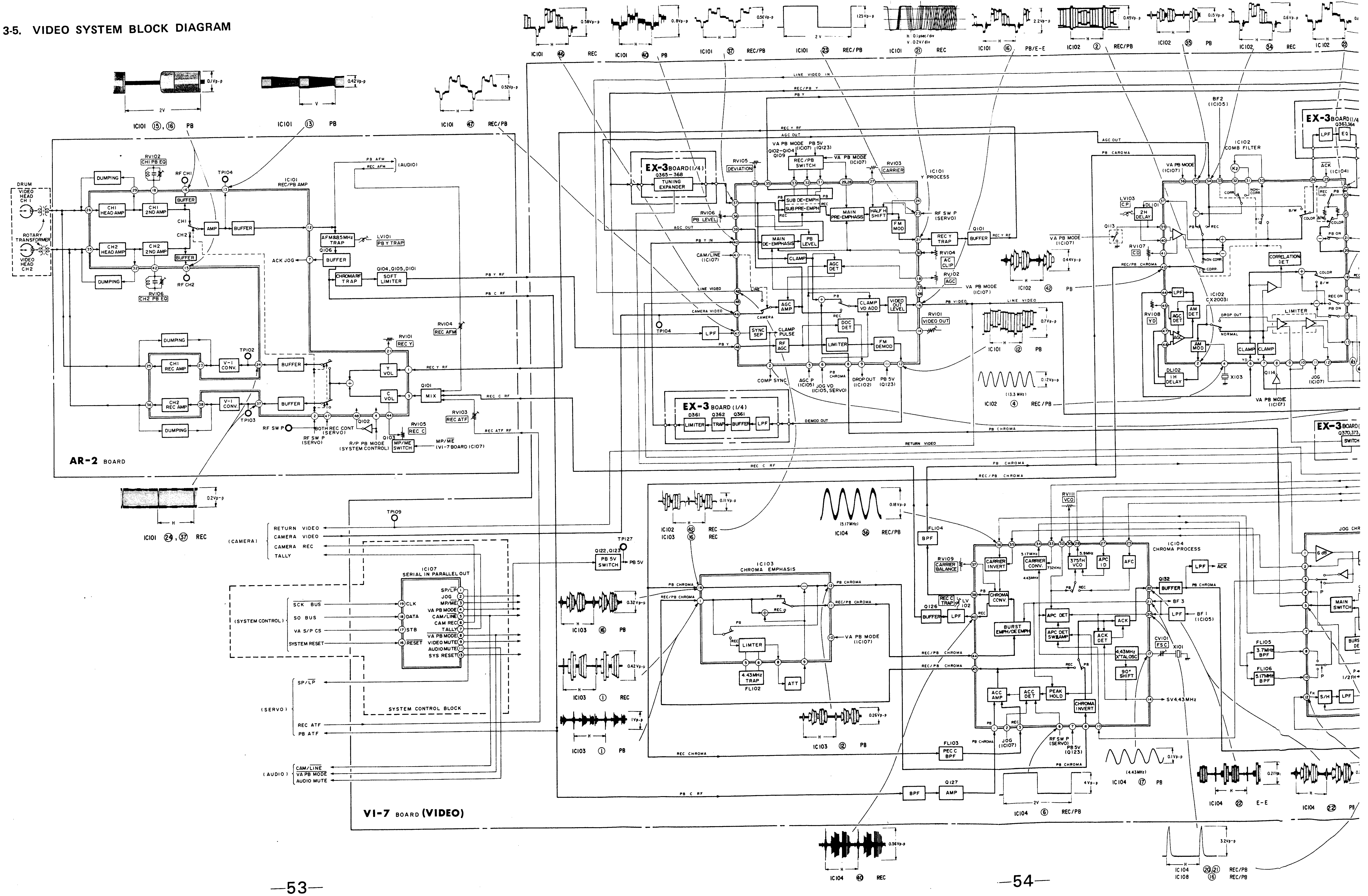
Burst Flack


IC706 (48) REC
IC706 (47) (TP703) REC
IC706 (14),(15) REC
IC706 (49) REC
IC706 (33),(36) REC
TP703 REC
TP706 REC
ME-2 BOARD
IC701 1H DELAY
IC705
3V REG
2V REG
IC706 WHITE BALANCE DET IRIS, AGC
TP703
XVD
PEDESTAL
DET
RESET
COMP
BIAS
IRIS REF
AGC REF
IRIS DO
AGC CONT
R-G
B-G
Q718 LPF
RV708 LLS
Q714 CLIP (IRIS WEIGHT)
Q715,Q716 IRIS DET
Q711 Q712,Q713 AGC DET
Q710 CLIP (AGC WEIGHT)
+8.5V RV711 AGH
Q730
Q732
DR902 CAMERA DC/DC CONVERTER
CAM UNREG (POWER)
8.5V
5V
20V
12V
CAM ON (SYSTEM CONTROL)
TP701 REC
TP702 REC
IC702 (37) REC
IC702 (36) REC
S754 IRIS
OPEN (BACK LIGHT)
NORMAL
CLOSE (HIGH LIGHT)
D751 CAMERA POWER
S753 CAMERA POWER
CAM POWER
S752 REC REVIEW
R/R
(SYSTEM CONTROL)
5800°K
3200°K
AUTO
AWB SET
S751 WHITE BALANCE
AUTO WHITE BALANCE
RR-12 BOARD
IC706 (13) REC
BUFFER
RV701 MR1
RV702 MR2
RV703 MB1
RV704 MB2
IC701
IC702(1/2) BUFFER
BACK-UP JUDGEMENT
BACK-UP CONTROL
Q708 LED DRIVE
D709,D702 Q707,Q723 LED DRIVE
Q728,Q729 Q721,Q722 FLICKER
SH2
SH1
XDL1
XDL2
CLP2
(CP-11 BOARD) IC707
OUTPUT S/H TIMING
CCD CLOCK DRIVER
AUTO BIAS
PEDESTAL CLAMP
VGG
1H DELAY
OUT PUT
Q705 BUFFER
Q702 BUFFER
Q704 BUFFER
Q703 BUFFER
TP707
TP704
VDD
Q701,IC704 VOLTAGE SHIFT
12V
Q720,Q721 PROTECT
5V
TP707,708 REC
TP704,705 REC
RV701 G1 GAIN
RV702 RB1 GAIN
RV703 G2 GAIN
RV704 RB2 GAIN
IC702 MATRIX
CLP
AMP
S/H
DC AJ
GC AJ
GC
TP701
TP702
TP705
TP708
RV705 MPX DC
MPX
ID1 (CP-11 BOARD) IC707
YH MATRIX
V APERTURE COMPENSATION
YL MATRIX
CHROMA MATRIX
S/H: SAMPLING HOLD
CLP: CLAMP
GC: GAIN CONTROL
YH
YL-YH
R-Y
B-Y
RV706 R-Y GAIN
RV707 B-Y GAIN
RV708 R-Y MIX
RV709 B-Y MIX
IC702 (16) REC
IC702 (40) REC
IC702 (39) REC
CLP3 (CP-11 BOARD) IC707
DL701 0.18µsec DELAY
RV710 APL
RV711 APS
BLK (CP-11 BOARD) IC708
RV716 PEDESTAL
RV717 WHITE CLIP
IC703 ENCODER
FL701 4.73MHz LPF
Q711 BUFFER
CLAMP
APERTURE CONTROL
YGC
WHITE CLIP
FADER
VF VIDEO
CAMERA VIDEO
Q706 0.5MHz LPF
Q707,Q708 0.95MHz LPF
Q709,Q710 0.95MHz LPF
TP709
RV712 CB 90°
RV713 CB 0°
RV715 HUE
FSC (CP-11 BOARD) IC708
MOD
BGC
1/4
GATE
CHROMA
BURST
LALT (CP-11 BOARD) IC708
BF (CP-11 BOARD) IC708
RV714 BURST GAIN
FL702 BPF
RV718 FADER GAIN
SYNC (CP-11 BOARD) IC708
IC703 (47) REC
Q712-Q717 CAMERA RETURN
TP711
RETURN VIDEO
CAMERA VIDEO
(VIDEO)
Q722 BUFFER
CAMERA REC
TALLY
(SYSTEM CONTROL)
TP710
Q718,Q719 LED DRIVE
EVF CONNECTOR
EF-3 BOARD
IC703 (44) (TP711) REC
IC703 (22) REC
IC703 (14) REC
TP709 REC
IC703 (16) REC
Synch.

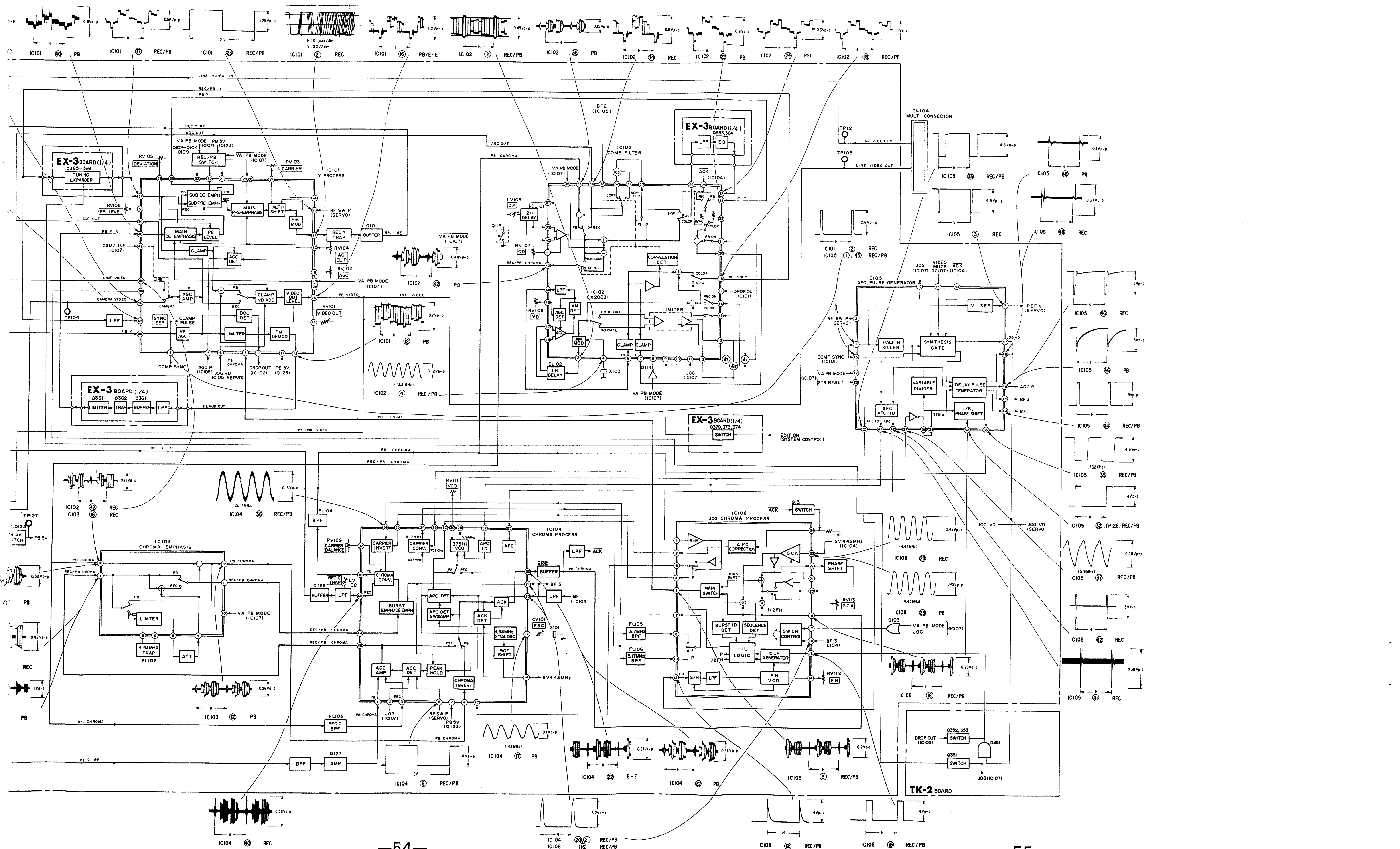
Burst-Phase

Tlack

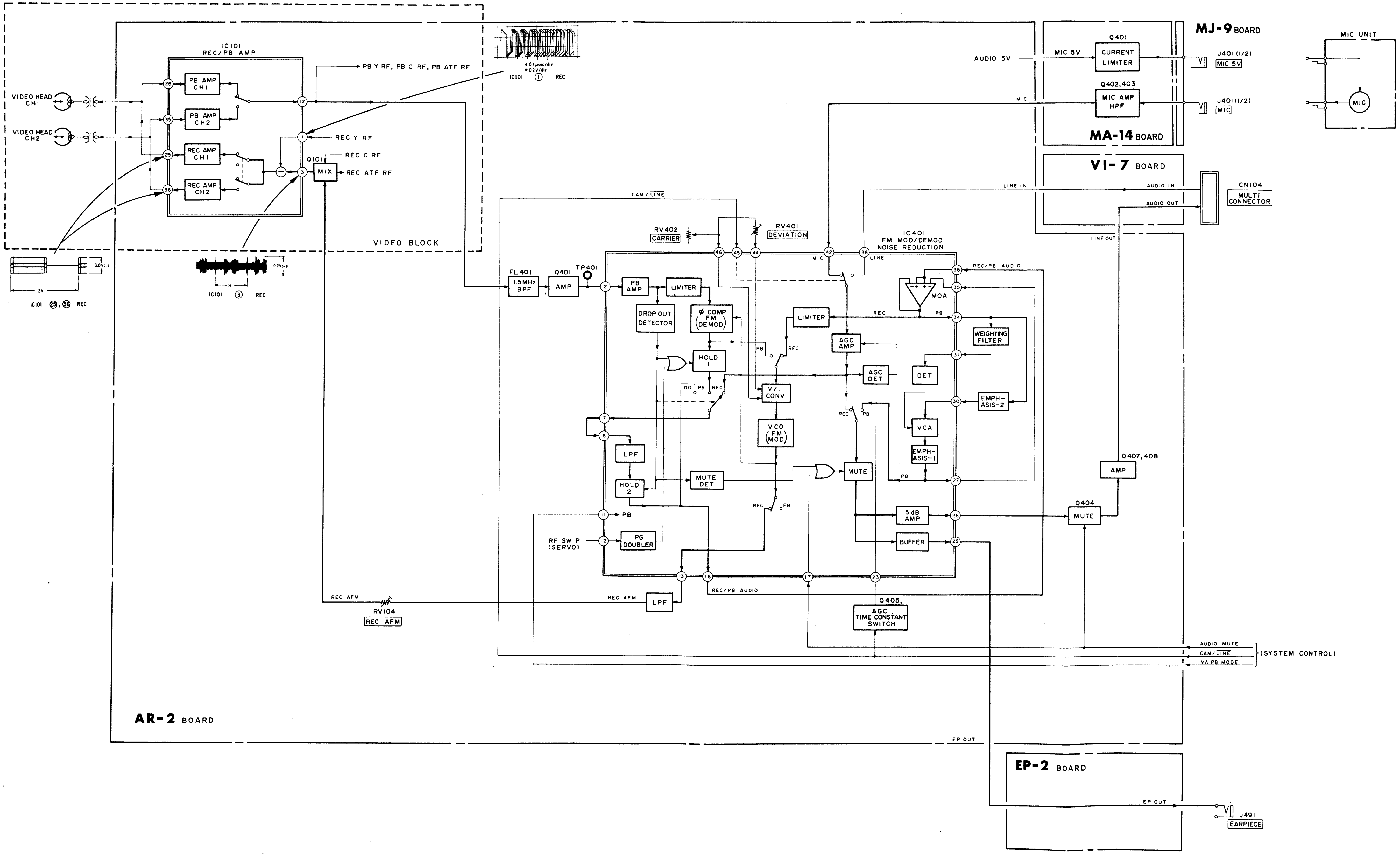
3-5. VIDEO SYSTEM BLOCK DIAGRAM



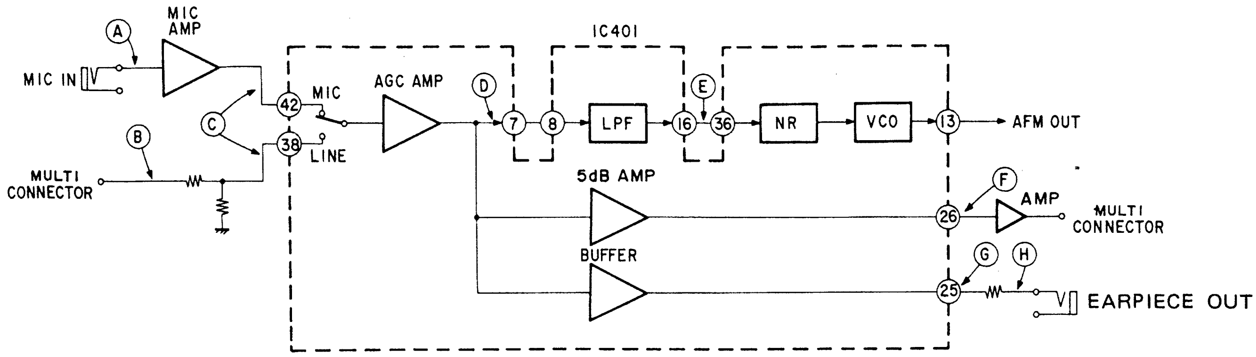
IC101 ⑮, ⑯ PB
IC101 ⑬ PB
IC101 ㊼ REC/PB
IC101 ㊻ REC
IC101 ㊵ PB
IC101 ㊲ REC/PB
IC101 ㉓ REC/PB
IC101 ㉑ REC
IC101 ⑯ PB/E-E
IC102 ② REC/PB
IC102 ㉟ PB
IC102 ㉞ REC
IC101 ㉔, ㊲ REC
DRUM
VIDEO HEAD CH1
ROTARY TRANSFORMER
VIDEO HEAD CH2
DUMPING
CH1 HEAD AMP
CH1 2ND AMP
CH2 HEAD AMP
CH2 2ND AMP
RV102 CH1 PB EQ
RV106 CH2 PB EQ
RF CH1
RF CH2
TP104
BUFFER
AMP
IC101 REC/PB AMP
AFM&8.5MHz TRAP
Q106
LV101 PB Y TRAP
ACK JOG
CHROMA RF TRAP
SOFT LIMITER
Q104, Q105, D101
CH1 REC AMP
CH2 REC AMP
V-I CONV.
TP102
TP103
Y VOL
C VOL
Q101
MIX
RV101 REC Y
RV104 REC AFM
RV103 REC ATF
RV105 REC C
RF SW P
BOTH REC CONT (SERVO)
RF SW P (SERVO)
R/P PB MODE (SYSTEM CONTROL)
Q102
Q103
MP/ME SWITCH
MP/ME (VI-7 BOARD IC107)
AR-2 BOARD
EX-3 BOARD (1/4)
Q365–368
TUNING EXPANDER
RV105 DEVIATION
RV106 PB LEVEL
REC/PB SWITCH
SUB DE-EMPH
SUB PRE-EMPH
MAIN PRE-EMPHASIS
HALF H SHIFT
FM MOD
RV103 CARRIER
IC101 Y PROCESS
MAIN DE-EMPHASIS
PB LEVEL
CLAMP
AGC DET
REC Y TRAP
RV104 AC CLIP
RV102 AGC
Q101 BUFFER
AGC AMP
CLAMP VD ADD
VIDEO OUT LEVEL
RV101 VIDEO OUT
SYNC SEP
CLAMP PULSE
RF AGC
DOC DET
LIMITER
FM DEMOD
LPF
TP104
COMP SYNC
AGC P (IC105)
JOG VD (IC105, SERVO)
DROP OUT (IC102)
PB 5V (Q123)
Q361 Q362 Q361
LIMITER
TRAP
BUFFER
LINE VIDEO IN
REC/PB Y
PB Y
REC Y RF
AGC OUT
PB CHROMA
DEMOD OUT
RETURN VIDEO
REC C RF
REC/PB CHROMA
IC101 ⑫ PB
IC102 ④ REC/PB
IC102 ㊷ PB
BF2 (IC105)
IC102 COMB FILTER
LV103 CP
DL101
2H DELAY
Q113
RV107 CD
RV108 YD
DL102 1H DELAY
IC102 CX20031
AGC DET
AM DET
AM MOD
CLAMP
X103
Q114
LIMITER
CORRELATION DET
JOG (IC107)
VA PB MODE (IC107)
ACK (IC104)
EX-3 BOARD (1/4) Q363, 364
LPF
EQ
EX-3 BOARD Q370, 373
SWITCH
RETURN VIDEO
CAMERA VIDEO
CAMERA REC
TALLY
(CAMERA)
TP109
IC107 SERIAL IN PARALLEL OUT
SCK BUS
SO BUS
VA S/P CS
SYSTEM RESET
(SYSTEM CONTROL)
CLK
DATA
STB
RESET
SP/LP
JOG
MP/ME
VA PB MODE
CAM/LINE
CAM REC
TALLY
VA PB MODE
VIDEO MUTE
AUDIO MUTE
SYS RESET
SYSTEM CONTROL BLOCK
(SERVO)
REC ATF
PB ATF
(AUDIO)
CAM/LINE
VA PB MODE
AUDIO MUTE
VI-7 BOARD (VIDEO)
TP127
Q122, Q123
PB 5V SWITCH
PB 5V
IC102 ㊷ REC
IC103 ⑯ REC
IC104 ㊱ REC/PB
IC103 CHROMA EMPHASIS
LIMTER
4.43MHz TRAP FL102
ATT
IC103 ⑯ PB
IC103 ① REC
IC103 ① PB
IC103 ⑫ PB
FL104 BPF
RV109 CARRIER BALANCE
RV111 VCO
IC104 CHROMA PROCESS
CARRIER INVERT
CARRIER CONV.
375fH VCO
APC ID
AFC
CHROMA CONV.
BURST EMPH/DE EMPH
Q126 BUFFER
REC C TRAP
LV102
APC DET
APC DET SW&AMP
ACK DET
4.43MHz X'TAL OSC
90° SHIFT
CV101 FSC
X101
Q132 BUFFER
LPF ACK
BF3
BF1 (IC105)
SV 4.43MHz
ACC AMP
ACC DET
PEAK HOLD
CHROMA INVERT
JOG (IC107)
RF SW P (SERVO)
PB 5V (Q123)
FL103 PEC C BPF
Q127 AMP
BPF
PB C RF
REC CHROMA
IC104 ⑥ REC/PB
IC104 ⑰ PB
IC104 ㉒ E-E
IC104 ㉒ PB
IC104 ㊵ REC
IC104 IC108 ⑳㉑ ⑯ REC/PB
FL105 3.7MHz BPF
FL106 5.17MHz BPF
6dB
MAIN SWITCH
S/H
LPF

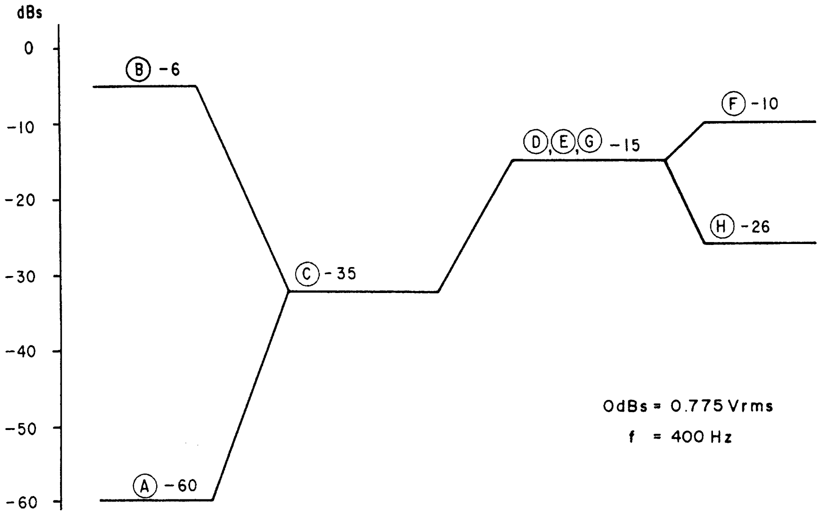

IC101 (40) PB
IC101 (37) REC/PB
IC101 (23) REC/PB
IC101 (21) REC
IC101 (16) PB/E-E
IC102 (2) REC/PB
IC102 (35) PB
IC102 (34) REC
IC102 (22) PB
IC102 (24) REC
IC102 (18) REC/PB
LINE VIDEO IN
REC/PB Y
PB Y
REC Y RF
AGC OUT
EX-3 BOARD (1/4)
Q365-368
TUNING EXPANDER
RV105 DEVIATION
RV106 PB LEVEL
VA PB MODE PB 5V
Q102-Q104 (IC107) (Q123)
Q109
REC/PB SWITCH
VA PB MODE (IC107)
RV103 CARRIER
IC101 Y PROCESS
SUB DE-EMPH
SUB PRE-EMPH
MAIN PRE-EMPHASIS
HALF H SHIFT
FM MOD
RF SW P (SERVO)
MAIN DE-EMPHASIS
PB LEVEL
REC Y TRAP
Q101 BUFFER
CAM/LINE (IC107)
CLAMP
AGC DET
RV104 AC CLIP
RV102 AGC
LINE VIDEO
CAMERA VIDEO
AGC AMP
CLAMP VD ADD
VIDEO OUT LEVEL
RV101 VIDEO OUT
TP104
LPF
SYNC SEP
CLAMP PULSE
RF AGC
DOC DET
LIMITER
FM DEMOD
COMP SYNC
AGC P (IC105)
PB CHROMA
JOG VD (IC105, SERVO)
DROP OUT (IC102)
PB 5V (Q123)
EX-3 BOARD (1/4)
D361 Q362 Q361
LIMITER TRAP BUFFER LPF
DEMOD OUT
RETURN VIDEO
IC101 (12) PB
IC102 (4) REC/PB
(13.3 MHz)
IC102 (42) PB
BF2 (IC105)
IC102 COMB FILTER
AGC OUT
PB CAROMA
VA PB MODE (IC107)
LV103 CP
DL101 2H DELAY
Q113
VA PB MODE (IC107)
RV107 CD
REC/PB CHROMA
NON CORR
CORR
CORRELATION DET
COLOR B/W
LIMITER
RV108 YD
AGC DET
AM DET
AM MOD
DROP OUT
NORMAL
DL102 1H DELAY
CLAMP
X103
Q114
VA PB MODE (IC107)
JOG (IC107)
IC102 CX20031
REC ON
PB ON
DROP OUT (IC101)
EX-3 BOARD (1/4)
Q363,364
LPF EQ
ACK (IC104)
CN104 MULTI CONNECTOR
TP121
TP108
LINE VIDEO IN
LINE VIDEO OUT
IC105 (33) REC/PB
IC105 (3) REC
IC105 (49) PB
IC105 (49) REC
IC101 (2) REC
IC105 (1), (5) REC/PB
IC105 AFC, PULSE GENERATOR
JOG (IC107)
VIDEO MUTE (IC107)
ACK (IC104)
V SEP
REF V (SERVO)
RF SW P (SERVO)
HALF H KILLER
SYNTHESIS GATE
COMP SYNC (IC101)
VA PB MODE
SYS RESET
VARIABLE DIVIDER
DELAY PULSE GENERATOR
AGC P
BF2
BF1
AFC AFC ID
1/8 PHASE SHIFT
375fH
EX-3 BOARD (1/4)
Q370,373,374
SWITCH
EDIT ON (SYSTEM CONTROL)
IC105 (46) REC
IC105 (46) PB
IC105 (44) REC/PB
IC105 (35) REC/PB
IC105 (32) (TP128) REC/PB
IC105 (37) REC/PB
IC105 (42) REC
IC105 (41) REC
JOG VD (SERVO)
REC C RF
PB CHROMA
REC/PB CHROMA
IC102 (42) REC
IC103 (16) REC
IC104 (36) REC/PB
(5.17MHz)
TP127
Q123
PB 5V
IC103 CHROMA EMPHASIS
VA PB MODE (IC107)
LIMTER
4.43MHz TRAP
FL102
ATT
IC103 (12) PB
FL103 PEC C BPF
REC CHROMA
PB C RF
BPF
Q127 AMP
FL104 BPF
RV109 CARRIER BALANCE
CARRIER INVERT
CARRIER CONV.
RV111 VCO
375fH VCO
APC ID
AFC
IC104 CHROMA PROCESS
LPF ACK
Q132 BUFFER
REC C TRAP
LV102
Q126 BUFFER
CHROMA CONV.
BURST EMPH/DE EMPH
APC DET
APC DET SW&AMP
ACK DET
ACK
4.43MHz X'TAL OSC
CV101 FSC
X101
90° SHIFT
LPF BF1 (IC105)
BF 3
SV4.43MHz
ACC AMP
ACC DET
PEAK HOLD
CHROMA INVERT
JOG (IC107)
RF SW P (SERVO)
PB 5V (Q123)
IC104 (17) PB
IC104 (6) REC/PB
IC104 (40) REC
IC104 (22) E-E
IC104 (22) PB
IC104 (20), (21) REC/PB
IC108 (16) REC/PB
IC108 JOG CHROMA PROCESS
Q131 SWITCH
SV 4.43MHz (IC104)
6dB
APC CORRECTION
GCA
PHASE SHIFT
QUASI BURST
MAIN SWITCH
RV113 GCA
1/2FH
FL105 3.7MHz BPF
FL106 5.17MHz BPF
BURST ID DET
SEQUENCE DET
SWICH CONTROL
IIL LOGIC
CLF GENERATOR
S/H
LPF
FH VCO
RV112 FH
D103
VA PB MODE (IC107)
JOG
BF 3 (IC104)
IC108 (23) REC
IC108 (23) PB
IC108 (18) REC/PB
IC108 (5) REC/PB
IC108 (12) REC/PB
IC108 (15) REC/PB
DROP OUT (IC102)
Q352,353 SWITCH
Q351 SWITCH
D351
JOG (IC107)
TK-2 BOARD

3-6. VIDEO/AUDIO BLOCK DIAGRAM

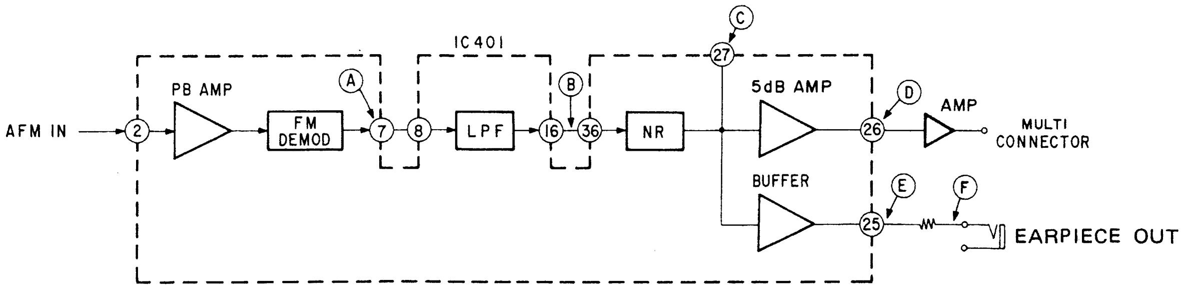

IC101
REC/PB AMP
VIDEO HEAD CH1
VIDEO HEAD CH2
PB AMP CH1
PB AMP CH2
REC AMP CH1
REC AMP CH2
26
35
25
36
12
1
3
PB Y RF, PB C RF, PB ATF RF
REC Y RF
REC C RF
REC ATF RF
Q101
MIX
H:0.2μsec/div
V:0.2V/div
IC101 ① REC
3.0Vp-p
2V
IC101 ㉕, ㊱ REC
0.2Vp-p
H
IC101 ③ REC
VIDEO BLOCK
CAM/LINE
RV402
CARRIER
RV401
DEVIATION
IC401
FM MOD/DEMOD
NOISE REDUCTION
46
45
44
42
38
MIC
LINE
FL401
1.5MHz BPF
Q401
AMP
TP401
2
PB AMP
LIMITER
DROP OUT DETECTOR
φ COMP FM (DEMOD)
HOLD 1
DO
PB
REC
V/I CONV
VCO (FM MOD)
LIMITER
AGC AMP
AGC DET
MOA
WEIGHTING FILTER
DET
EMPH-ASIS-2
VCA
EMPH-ASIS-1
MUTE
MUTE DET
5 dB AMP
BUFFER
LPF
HOLD 2
PG DOUBLER
7
8
11
PB
12
RF SW P (SERVO)
13
16
17
23
36
35
34
31
30
27
26
25
REC/PB AUDIO
REC AFM
LPF
RV104
REC AFM
Q405,
AGC TIME CONSTANT SWITCH
Q404
MUTE
Q407,408
AMP
AUDIO 5V
MIC 5V
Q401
CURRENT LIMITER
Q402,403
MIC AMP HPF
MIC
J401 (1/2)
MIC 5V
J401 (1/2)
MIC
MJ-9 BOARD
MA-14 BOARD
MIC UNIT
MIC
VI-7 BOARD
LINE IN
AUDIO IN
AUDIO OUT
LINE OUT
CN104
MULTI CONNECTOR
AUDIO MUTE
CAM/LINE
VA PB MODE
(SYSTEM CONTROL)
AR-2 BOARD
EP OUT
EP-2 BOARD
EP OUT
J491
EARPIECE

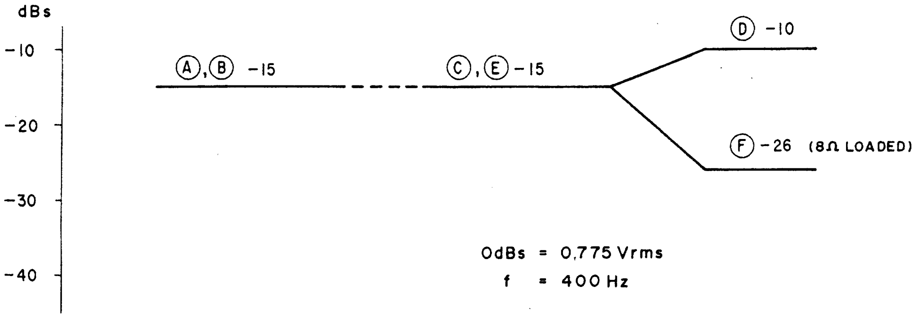
3-7. AUDIO LEVEL DIAGRAM


MIC AMP
A
MIC IN
B
MULTI CONNECTOR
C
42
38
MIC
LINE
AGC AMP
D
IC401
7
8
LPF
16
E
36
NR
VCO
13
AFM OUT
5dB AMP
F
26
AMP
MULTI CONNECTOR
BUFFER
G
H
25
EARPIECE OUT



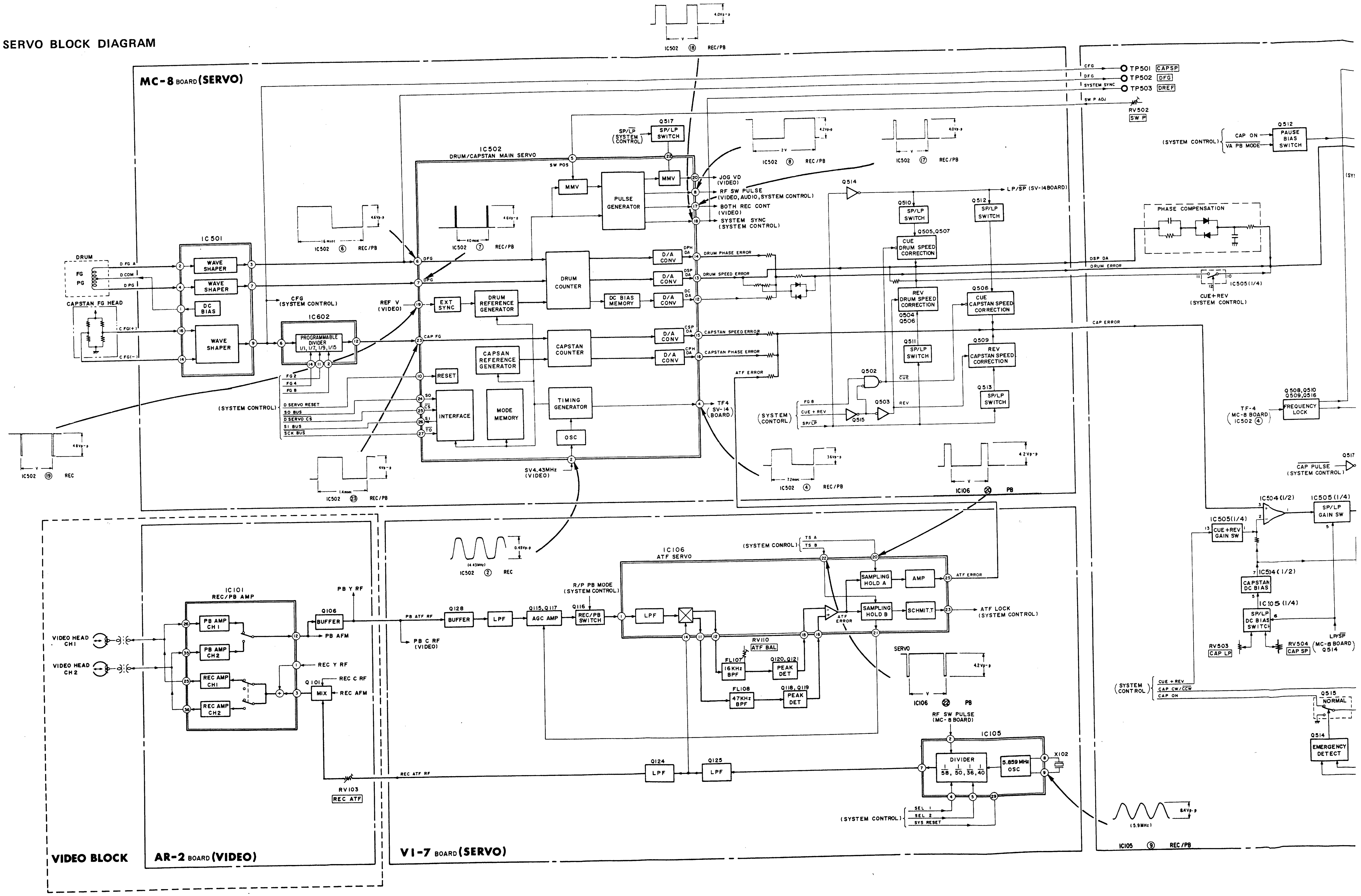
0dBs = 0.775 Vrms
f = 400 Hz

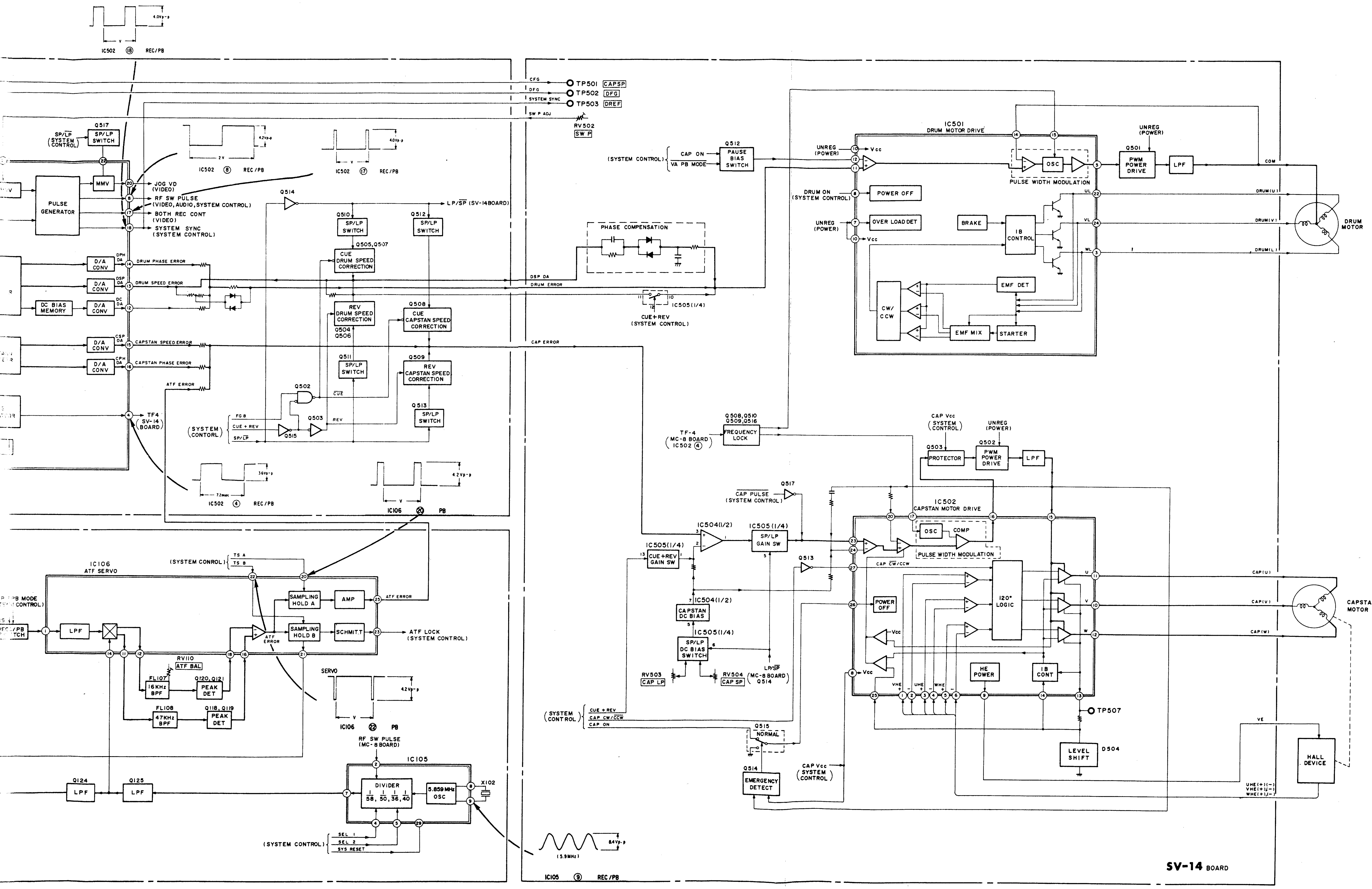

C
27
IC401
PB AMP
A
B
AFM IN
2
FM DEMOD
7
8
LPF
16
36
NR
5dB AMP
D
26
AMP
MULTI CONNECTOR
BUFFER
E
F
25
EARPIECE OUT



0dBs = 0.775 Vrms
f = 400 Hz

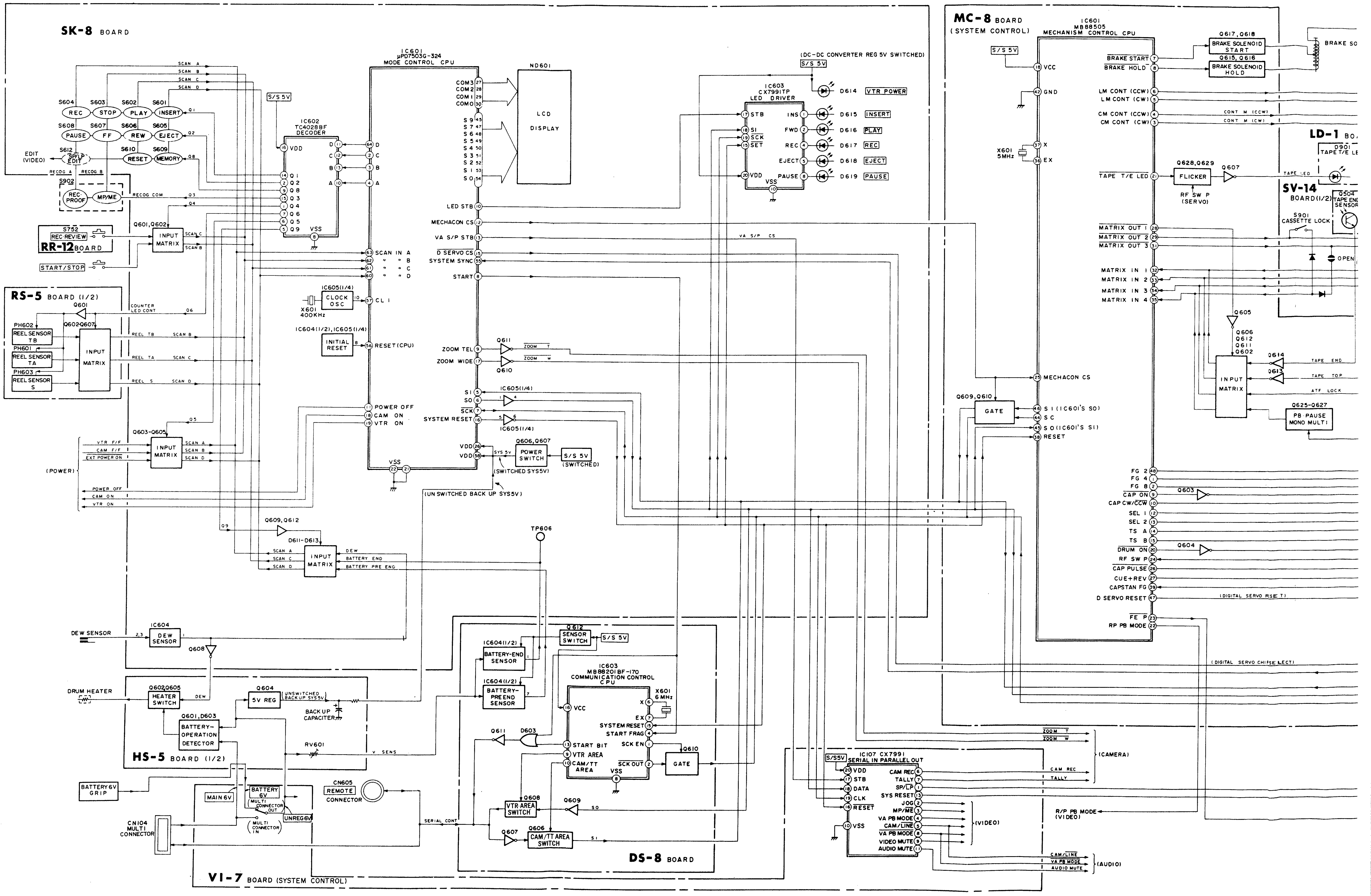
3-8. SERVO BLOCK DIAGRAM

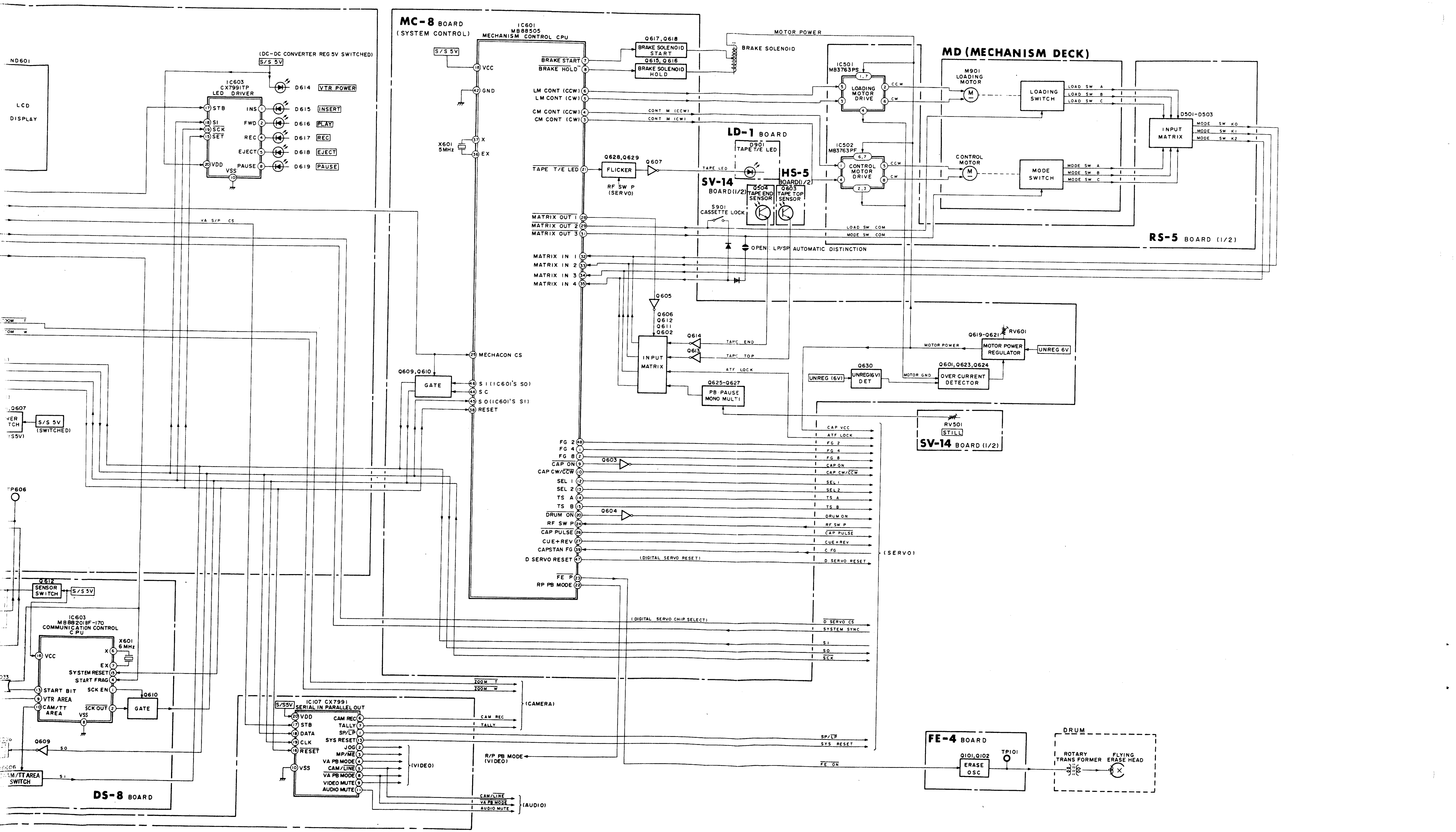

MC-8 BOARD (SERVO)
IC501
WAVE SHAPER
WAVE SHAPER
DC BIAS
WAVE SHAPER
DRUM
FG
PG
CAPSTAN FG HEAD
CFG (SYSTEM CONTROL)
IC602
PROGRAMMABLE DIVIDER 1/1, 1/7, 1/9, 1/15
(SYSTEM CONTROL)
D SERVO RESET
SO BUS
D SERVO CS
SI BUS
SCK BUS
IC502
DRUM/CAPSTAN MAIN SERVO
SW POS
MMV
PULSE GENERATOR
MMV
EXT SYNC
DRUM REFERENCE GENERATOR
DRUM COUNTER
DC BIAS MEMORY
D/A CONV
CAPSTAN REFERENCE GENERATOR
CAPSTAN COUNTER
RESET
INTERFACE
MODE MEMORY
TIMING GENERATOR
OSC
REF V (VIDEO)
SV4.43MHz (VIDEO)
Q517
SP/LP SWITCH
SP/LP (SYSTEM CONTROL)
JOG VD (VIDEO)
RF SW PULSE (VIDEO, AUDIO, SYSTEM CONTROL)
BOTH REC CONT (VIDEO)
SYSTEM SYNC (SYSTEM CONTROL)
DRUM PHASE ERROR
DRUM SPEED ERROR
CAPSTAN SPEED ERROR
CAPSTAN PHASE ERROR
ATF ERROR
TF4 (SV-14 BOARD)
Q514
LP/SP (SV-14BOARD)
Q510 SP/LP SWITCH
Q512 SP/LP SWITCH
Q505, Q507 CUE DRUM SPEED CORRECTION
REV DRUM SPEED CORRECTION
Q504 Q506
Q508 CUE CAPSTAN SPEED CORRECTION
Q511 SP/LP SWITCH
Q509 REV CAPSTAN SPEED CORRECTION
Q513 SP/LP SWITCH
Q502
Q503
Q515
(SYSTEM CONTORL)
FG 8
CUE + REV
SP/LP
IC502 ⑱ REC/PB
IC502 ⑧ REC/PB
IC502 ⑰ REC/PB
IC502 ⑥ REC/PB
IC502 ⑦ REC/PB
IC502 ⑲ REC
IC502 ㉓ REC/PB
IC502 ④ REC/PB
IC106 ⑳ PB
IC502 ② REC
IC106 ㉒ PB
IC105 ⑨ REC/PB
CFG
DFG
SYSTEM SYNC
SW P ADJ
TP501 CAPSP
TP502 DFG
TP503 DREF
RV502 SW P
Q512
CAP ON
VA PB MODE
(SYSTEM CONTROL)
PAUSE BIAS SWITCH
PHASE COMPENSATION
DSP DA
DRUM ERROR
IC505(1/4)
CUE+REV (SYSTEM CONTROL)
CAP ERROR
Q508, Q510 Q509, Q516
FREQUENCY LOCK
TF-4 (MC-8 BOARD IC502 ④)
CAP PULSE (SYSTEM CONTROL)
Q517
IC504(1/2)
IC505(1/4)
SP/LP GAIN SW
IC505(1/4)
CUE+REV GAIN SW
IC504(1/2)
CAPSTAN DC BIAS
IC505(1/4)
SP/LP DC BIAS SWITCH
RV503 CAP LP
RV504 CAP SP
LP/SP (MC-8 BOARD) Q514
(SYSTEM CONTROL)
CUE + REV
CAP CW/CCW
CAP ON
Q515 NORMAL
Q514 EMERGENCY DETECT
VIDEO BLOCK
AR-2 BOARD (VIDEO)
IC101 REC/PB AMP
VIDEO HEAD CH1
VIDEO HEAD CH2
PB AMP CH1
PB AMP CH2
REC AMP CH1
REC AMP CH2
Q106 BUFFER
PB Y RF
PB AFM
REC Y RF
REC C RF
Q101 MIX
REC AFM
RV103 REC ATF
V1-7 BOARD (SERVO)
PB ATF RF
PB C RF (VIDEO)
Q128 BUFFER
LPF
Q115, Q117 AGC AMP
Q116 REC/PB SWITCH
R/P PB MODE (SYSTEM CONTROL)
IC106 ATF SERVO
(SYSTEM CONROL)
TS A
TS B
LPF
SAMPLING HOLD A
AMP
SAMPLING HOLD B
SCHMIT.T
ATF ERROR
ATF LOCK (SYSTEM CONTROL)
RV110 ATF BAL
FL107 16KHz BPF
Q120, Q121 PEAK DET
FL108 47KHz BPF
Q118, Q119 PEAK DET
SERVO
RF SW PULSE (MC-8 BOARD)
REC ATF RF
Q124 LPF
Q125 LPF
IC105
DIVIDER 1/58, 1/50, 1/36, 1/40
5.859MHz OSC
X102
(SYSTEM CONTROL)
SEL 1
SEL 2
SYS RESET



IC502 ⑱ REC/PB
4.0Vp-p
CFG
DFG
SYSTEM SYNC
SW P ADJ
TP501 CAPSP
TP502 DFG
TP503 DREF
RV502 SW P
Q517 SP/LP SWITCH
SP/LP (SYSTEM CONTROL)
PULSE GENERATOR
MMV
JOG VD (VIDEO)
RF SW PULSE (VIDEO, AUDIO, SYSTEM CONTROL)
BOTH REC CONT (VIDEO)
SYSTEM SYNC (SYSTEM CONTROL)
IC502 ⑧ REC/PB
2V
4.2Vp-p
IC502 ⑰ REC/PB
4.0Vp-p
Q514
LP/SP (SV-14 BOARD)
Q510 SP/LP SWITCH
Q512 SP/LP SWITCH
Q505,Q507
CUE DRUM SPEED CORRECTION
D/A CONV
DC BIAS MEMORY
DRUM PHASE ERROR
DRUM SPEED ERROR
CAPSTAN SPEED ERROR
CAPSTAN PHASE ERROR
ATF ERROR
DSP DA
DRUM ERROR
REV DRUM SPEED CORRECTION
Q504 Q506
Q508 CUE CAPSTAN SPEED CORRECTION
Q511 SP/LP SWITCH
Q509 REV CAPSTAN SPEED CORRECTION
Q513 SP/LP SWITCH
Q502
Q503
Q515
CUE
REV
FG 8
CUE + REV
SP/LP
(SYSTEM CONTORL)
TF4 (SV-14 BOARD)
IC502 ④ REC/PB
3.6Vp-p
7.2msec
4.2Vp-p
IC106 ㉒ PB
PHASE COMPENSATION
CUE+REV (SYSTEM CONTROL)
IC505(1/4)
CAP ERROR
(SYSTEM CONTROL) CAP ON VA PB MODE
Q512 PAUSE BIAS SWITCH
IC501 DRUM MOTOR DRIVE
UNREG (POWER)
Vcc
PULSE WIDTH MODULATION
OSC
DRUM ON (SYSTEM CONTROL)
POWER OFF
OVER LOAD DET
BRAKE
IB CONTROL
EMF DET
CW/CCW
EMF MIX
STARTER
Q501 PWM POWER DRIVE
LPF
COM
DRUM(U)
DRUM(V)
DRUM(L)
DRUM MOTOR
TF-4 (MC-8 BOARD) IC502 ④
Q508,Q510 Q509,Q516 FREQUENCY LOCK
CAP Vcc (SYSTEM CONTROL)
UNREG (POWER)
Q503 PROTECTOR
Q502 PWM POWER DRIVE
LPF
CAP PULSE (SYSTEM CONTROL)
Q517
IC502 CAPSTAN MOTOR DRIVE
IC504(1/2)
IC505(1/4) SP/LP GAIN SW
IC505(1/4) CUE+REV GAIN SW
Q513
COMP
PULSE WIDTH MODULATION
CAP CW/CCW
120° LOGIC
POWER OFF
CAP(U)
CAP(V)
CAP(W)
CAPSTAN MOTOR
IC504(1/2) CAPSTAN DC BIAS
IC505(1/4) SP/LP DC BIAS SWITCH
RV503 CAP LP
RV504 CAP SP
(MC-8 BOARD) Q514
LP/SP
HE POWER
IB CONT
TP507
LEVEL SHIFT
D504
VE
HALL DEVICE
UHE(+|-)
VHE(+|-)
WHE(+|-)
(SYSTEM CONTROL) CUE + REV CAP CW/CCW CAP ON
Q515 NORMAL
Q514 EMERGENCY DETECT
CAP Vcc (SYSTEM CONTROL)
IC106 ATF SERVO
(SYSTEM CONROL) TS A TS B
PB MODE (SYSTEM CONTROL)
REC/PB SWITCH
LPF
ATF ERROR
SAMPLING HOLD A
SAMPLING HOLD B
AMP
SCHMITT
ATF LOCK (SYSTEM CONTROL)
RV110 ATF BAL
FL107 16KHz BPF
Q120,Q121 PEAK DET
FL108 47KHz BPF
Q118,Q119 PEAK DET
SERVO
4.2Vp-p
IC106 ㉒ PB
RF SW PULSE (MC-8 BOARD)
IC105
DIVIDER 58, 50, 36, 40
5.859MHz OSC
X102
Q124 LPF
Q125 LPF
(SYSTEM CONTROL) SEL 1 SEL 2 SYS RESET
8.4Vp-p
(5.9MHz)
IC105 ⑨ REC/PB
SV-14 BOARD

3-9. SYSTEM CONTROL BLOCK DIAGRAM


SK-8 BOARD
IC601 µPD7503G-324 MODE CONTROL CPU
IC602 TC4028BF DECODER
ND601
LCD DISPLAY
S604 REC
S603 STOP
S602 PLAY
S601 INSERT
S608 PAUSE
S607 FF
S606 REW
S605 EJECT
S612 S/L/D EDIT
S610 RESET
S609 MEMORY
EDIT (VIDEO)
S902 REC PROOF MP/ME
S752 REC REVIEW
RR-12 BOARD
START/STOP
Q601,Q602 INPUT MATRIX
IC605(1/4) CLOCK OSC
X601 400KHz
IC604(1/2),IC605(1/4) INITIAL RESET
RS-5 BOARD (1/2)
PH602 REEL SENSOR TB
PH601 REEL SENSOR TA
PH603 REEL SENSOR S
INPUT MATRIX
Q603-Q605 INPUT MATRIX
(POWER)
VTR F/F
CAM F/F
EXT POWER ON
Q609,Q612
D611-D613
INPUT MATRIX
DEW
BATTERY END
BATTERY PRE END
TP606
IC604 DEW SENSOR
DEW SENSOR
Q608
DRUM HEATER
Q602,Q605 HEATER SWITCH
Q604 5V REG
(UNSWITCHED BACK UP SYS5V)
BACK UP CAPACITER
Q601,D603 BATTERY-OPERATION DETECTOR
RV601
V SENS
HS-5 BOARD (1/2)
BATTERY 6V GRIP
MAIN 6V
BATTERY 6V
UNREG 6V
MULTI CONNECTOR OUT
MULTI CONNECTOR IN
CN104 MULTI CONNECTOR
CN605 REMOTE CONNECTOR
SERIAL CONT
VI-7 BOARD (SYSTEM CONTROL)
LED STB
MECHACON CS
VA S/P STB
D SERVO CS
SYSTEM SYNC
START
ZOOM TEL
ZOOM WIDE
Q611
Q610
SI
SO
SCK
SYSTEM RESET
IC605(1/4)
POWER OFF
CAM ON
VTR ON
Q606,Q607 POWER SWITCH
S/S 5V (SWITCHED)
(SWITCHED SYS5V)
(UN SWITCHED BACK UP SYS5V)
(DC-DC CONVERTER REG 5V SWITCHED)
S/S 5V
IC603 CX7991TP LED DRIVER
D614 VTR POWER
D615 INSERT
D616 PLAY
D617 REC
D618 EJECT
D619 PAUSE
Q612 SENSOR SWITCH
IC604(1/2) BATTERY-END SENSOR
IC604(1/2) BATTERY-PREEND SENSOR
IC603 MB88201BF-170 COMMUNICATION CONTROL CPU
X601 6MHz
SYSTEM RESET
START FRAG
START BIT
VTR AREA
CAM/TT AREA
SCK EN
SCK OUT
Q610 GATE
Q611
D603
Q608 VTR AREA SWITCH
Q609
Q607
Q606 CAM/TT AREA SWITCH
DS-8 BOARD
MC-8 BOARD (SYSTEM CONTROL)
IC601 MB88505 MECHANISM CONTROL CPU
X601 5MHz
MECHACON CS
Q609,Q610 GATE
SI (IC601'S SO)
SC
SO (IC601'S SI)
RESET
BRAKE START
BRAKE HOLD
Q617,Q618 BRAKE SOLENOID START
Q615,Q616 BRAKE SOLENOID HOLD
BRAKE SO
LM CONT (CCW)
LM CONT (CW)
CM CONT (CCW)
CM CONT (CW)
CONT M (CCW)
CONT M (CW)
TAPE T/E LED
Q628,Q629 FLICKER
Q607
RF SW P (SERVO)
LD-1 BO
Q901 TAPE T/E LED
SV-14 BOARD (1/2)
Q504 TAPE END SENSOR
S901 CASSETTE LOCK
OPEN
MATRIX OUT 1
MATRIX OUT 2
MATRIX OUT 3
MATRIX IN 1
MATRIX IN 2
MATRIX IN 3
MATRIX IN 4
Q605
Q606 Q612 Q611 Q602
Q614
Q613
TAPE END
TAPE TOP
ATF LOCK
INPUT MATRIX
Q625-Q627 PB PAUSE MONO MULTI
FG 2
FG 4
FG 8
CAP ON
Q603
CAP CW/CCW
SEL 1
SEL 2
TS A
TS B
DRUM ON
Q604
RF SW P
CAP PULSE
CUE+REV
CAPSTAN FG
D SERVO RESET
(DIGITAL SERVO RISE T)
FE P
RP PB MODE
(DIGITAL SERVO CHIPSELECT)
ZOOM T
ZOOM W
(CAMERA)
IC107 CX7991 SERIAL IN PARALLEL OUT
CAM REC
TALLY
SP/LP
SYS RESET
JOG
MP/ME
VA PB MODE
CAM/LINE
VA PB MODE
VIDEO MUTE
AUDIO MUTE
(VIDEO)
R/P PB MODE (VIDEO)
(AUDIO)


MC-8 BOARD
(SYSTEM CONTROL)
IC601
MB88505
MECHANISM CONTROL CPU
S/S 5V
VCC
GND
X601 5MHz
X
EX
BRAKE START
BRAKE HOLD
LM CONT (CCW)
LM CONT (CW)
CM CONT (CCW)
CM CONT (CW)
TAPE T/E LED
MATRIX OUT 1
MATRIX OUT 2
MATRIX OUT 3
MATRIX IN 1
MATRIX IN 2
MATRIX IN 3
MATRIX IN 4
MECHACON CS
S I (IC601'S SO)
S C
S O (IC601'S SI)
RESET
Q609,Q610
GATE
Q617,Q618
BRAKE SOLENOID START
Q615,Q616
BRAKE SOLENOID HOLD
MOTOR POWER
BRAKE SOLENOID
CONT M (CCW)
CONT M (CW)
Q628,Q629
FLICKER
Q607
RF SW P (SERVO)
TAPE LED
LD-1 BOARD
D901
TAPE T/E LED
SV-14 BOARD(1/2)
HS-5 BOARD(1/2)
Q504 TAPE END SENSOR
Q603 TAPE TOP SENSOR
S901 CASSETTE LOCK
OPEN LP/SP AUTOMATIC DISTINCTION
Q605
Q606
Q612
Q611
Q602
Q614
Q613
INPUT MATRIX
TAPE END
TAPE TOP
ATF LOCK
Q625-Q627
PB PAUSE MONO MULTI
IC501
MB3763PS
LOADING MOTOR DRIVE
IC502
MB3763PF
CONTROL MOTOR DRIVE
CCW
CW
MD (MECHANISM DECK)
M901
LOADING MOTOR
CONTROL MOTOR
LOADING SWITCH
MODE SWITCH
LOAD SW A
LOAD SW B
LOAD SW C
MODE SW A
MODE SW B
MODE SW C
D501-D503
INPUT MATRIX
MODE SW K0
MODE SW K1
MODE SW K2
LOAD SW COM
MODE SW COM
RS-5 BOARD (1/2)
Q619-Q621
RV601
MOTOR POWER
MOTOR POWER REGULATOR
UNREG 6V
Q630
UNREG(6V) DET
UNREG (6V)
MOTOR GND
Q601,Q623,Q624
OVER CURRENT DETECTOR
RV501
STILL
SV-14 BOARD (1/2)
FG 2
FG 4
FG 8
CAP ON
CAP CW/CCW
SEL 1
SEL 2
TS A
TS B
DRUM ON
RF SW P
CAP PULSE
CUE+REV
CAPSTAN FG
D SERVO RESET
FE P
RP PB MODE
Q603
Q604
(DIGITAL SERVO RESET)
CAP VCC
ATF LOCK
C FG
(SERVO)
(DIGITAL SERVO CHIP SELECT)
D SERVO CS
SYSTEM SYNC
SI
SO
SCK
ND601
LCD DISPLAY
(DC-DC CONVERTER REG 5V SWITCHED)
S/S 5V
IC603
CX7991TP
LED DRIVER
STB
SI
SCK
SET
VDD
VSS
INS
FWD
REC
EJECT
PAUSE
D614 VTR POWER
D615 INSERT
D616 PLAY
D617 REC
D618 EJECT
D619 PAUSE
VA S/P CS
ZOOM T
ZOOM W
Q607
S/S 5V (SWITCHED)
TP606
Q612
SENSOR SWITCH
S/S 5V
IC603
MB88201BF-170
COMMUNICATION CONTROL CPU
X601 6MHz
VCC
X
EX
SYSTEM RESET
START FRAG
START BIT
VTR AREA
CAM/TT AREA
SCK EN
SCK OUT
VSS
Q610
GATE
Q609
SO
SI
CAM/TT AREA SWITCH
DS-8 BOARD
IC107 CX7991
SERIAL IN PARALLEL OUT
S/S5V
VDD
STB
DATA
CLK
RESET
VSS
CAM REC
TALLY
SP/LP
SYS RESET
JOG
MP/ME
VA PB MODE
CAM/LINE
VA PB MODE
VIDEO MUTE
AUDIO MUTE
ZOOM T
ZOOM W
(CAMERA)
CAM REC
TALLY
(VIDEO)
R/P PB MODE (VIDEO)
CAM/LINE
VA PB MODE
AUDIO MUTE
(AUDIO)
SP/LP
SYS RESET
FE ON
FE-4 BOARD
Q101,Q102
ERASE OSC
TP101
DRUM
ROTARY TRANS FORMER
FLYING ERASE HEAD

3-10. SYSTEM CONTROL – CAMERA, VIDEO AND AUDIO BLOCK INTERFACE

SIGNAL	I/O	REF. NO., PIN NO.	MODE									
			STOP	FF	REW	CUE	RE-VIEW	PB	PB·PAUSE	REC	REC·PAUSE	RE-VERSE
R/P PB MODE	O	MC-8 BOARD IC601 ㉒	H	H	H	H	H	H	H	L	H	H
$\overline{\text{FEP}}$	O	MC-8 BOARD IC601 ㉓	H	H	H	H	H	H	H	L	H	H
ZOOM TEL	O	SK-8 BOARD IC601 ⑨	L	L	L	L	L	L	L	L	L	L
ZOOM WIDE	O	SK-8 BOARD IC601 ⑰	L	L	L	L	L	L	L	L	L	L
SP/$\overline{\text{LP}}$	O	VI-7 BOARD IC107 ①	*5	*5	*5	*5	*5	*2	*5	*1	*1	*2
JOG	O	VI-7 BOARD IC107 ②	L	L	L	H	H	L	H	L	L	H
MP/$\overline{\text{ME}}$	O	VI-7 BOARD IC107 ③	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3
VA PB MODE	O	VI-7 BOARD IC107 ④	L	L	L	H	H	H	H	L	L	H
CAM/$\overline{\text{LINE}}$	O	VI-7 BOARD IC107 ⑤	L*4	L*4	L*4	L*4	L*4	L*4	L*4	L*4	L*4	L*4
CAM REC	O	VI-7 BOARD IC107 ⑥	L*4	L*4	L*4	L	L	L	L	L*4	L*4	L
TALLY	O	VI-7 BOARD IC107 ⑦	L	L	L	L	L	L	L	L*4	L	L
$\overline{\text{VA PB MODE}}$	O	VI-7 BOARD IC107 ⑧	H	H	H	L	L	L	L	H	H	L
VIDEO MUTE	O	VI-7 BOARD IC107 ⑨	L	L	L	L	L	L	L	L	L	L
AUDIO MUTE	O	VI-7 BOARD IC107 ⑪	L	L	L	H	H	L	H	L	L	H

*1. BY SP/LP SELECTOR
*2. BY RECORDED TAPE
*3. BY USING TAPE
*4. "H" WHEN " CAMERA POWER" IS ON
*5. HOLDS THE PREVIOUS LEVEL

3-11. MECHANISM CONTROL CPU – SERVO BLOCK INTERFACE (MC-8 BOARD)

SIGNAL	I/O	REF. NO., PIN NO.	MODE									
			STOP	FF	REW	CUE	RE-VIEW	PB	PB·PAUSE	REC	REC·PAUSE	RE-VERSE
CAP FG	I	IC601 ㊴										
RF. SW PULSE	I	IC601 ㉔										
MONO MULTI	I	IC601 MATRIX IN 4 ㉟										
ATF LOCK	I	IC601 MATRIX IN 3 ㉞										
$\overline{\text{DRUM ON}}$	O	IC601 ⑳	H	L	L	L	L	L	L	L	L	L
$\overline{\text{CAP ON}}$	O	IC601 ⑨	H	L	L	L	L	L	H	L	H	L
CAP CW/$\overline{\text{CCW}}$	O	IC601 ⑩	L	L	H	L	H	L	L	L	L	H
D SERVO RESET	O	IC601 ㊼	L	L	L	L	L	L	L	L	L	L
$\overline{\text{CAP PULSE}}$	O	IC601 ㉖	L	L	L	L	L	L	L	L	L	L
CUE + REVIEW	O	IC601 ㉗	L	L	L	H	H	L	L	L	L	L
FG2	O	IC601 ㊽	L	H	H	L	H	L	L	L	L	L
FG4	O	IC601 ①	L	L	L	L	H	L	L	L	L	L
FG8	O	IC601 ②	L	H	H	H	L	L	L	L	L	L
SEL1	O	IC601 ⑫										
SEL2	O	IC601 ⑬										
TSA	O	IC601 ⑭										
TSB	O	IC601 ⑮										

3-12. CAPSTAN SPEED SELECTOR (IC602) OPERATION (MC-8 BOARD)

MODE / SIGNAL	SP			LP			FF/REW
	FWD	CUE	REV	FWD	CUE	REV	
CFG (Hz) (IC602 ⑥)	1340	12677	8900	670	6194	4577	
CAPFG (Hz) (IC602 ⑫)	1340	1409	1271	670	688	654	
FG2 (IC602 ⑪)	L	L	H	L	L	H	H
FG4 (IC602 ⑭)	L	L	H	L	L	H	L
FG8 (IC602 ②)	L	H	L	L	H	L	H
$\frac{\text{CFG}}{\text{CAPFG}}$	1/1	1/9	1/7	1/1	1/9	1/7	1/11

*1: The change in the dividing ratio of IC602 by the variation of signals FG2, FG4 and FG8.

3-13. SYSTEM CONTROL – MECHANISM BLOCK INTERFACE

SIGNAL	I/O	REF. NO., PIN NO.	STOP	FF	REW	CUE	REV	PB	PB・PAUSE	REC	REC・PAUSE	RVS
MODE SW *1	I	MC-8 BOARD IC601 MATRIX IN	3	6	6	1	5	1	1	1	1	5
LOAD SW *2	I	MC-8 BOARD IC601 MATRIX IN	3	3	3	3	3	3	3	3	3	3
CASSETTE LOCK SW	I	MC-8 BOARD IC601 MATRIX IN	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
$\overline{\text{TAPE TOP}}$	I	MC-8 BOARD IC601 MATRIX IN	NC	NC	H	H/NC	H	NC	NC	NC	H	H
$\overline{\text{TAPE END}}$	I	MC-8 BOARD IC601 MATRIX IN	H/NC	H	NC	H	H	H	H	H	H	H
REEL TA	I	SK-8 BOARD IC601 MATRIX IN										
REEL TB	I	SK-8 BOARD IC601 MATRIX IN										
REEL S	I	SK-8 BOARD IC601 MATRIX IN										
CM CONT (CW)	O	MC-8 BOARD IC601 ③	L	L	L	L	L	L	L	L	L	L
CM CONT (CCW)	O	MC-8 BOARD IC601 ④	L	L	L	L	L	L	L	L	L	L
LM CONT (CW)	O	MC-8 BOARD IC601 ⑤	L	L	L	L	L	L	L	L	L	L
LM CONT (CCW)	O	MC-8 BOARD IC601 ⑥	L	L	L	L	L	L	L	L	L	L
$\overline{\text{BRAKE START}}$	O	MC-8 BOARD IC601 ⑦	H	H	H	H	H	H	H	H	H	H
$\overline{\text{BRAKE HOLD}}$	O	MC-8 BOARD IC601 ⑧	H	L	L	H	L	H	H	H	H	L
$\overline{\text{TAPE T/E LED}}$	O	MC-8 BOARD IC601 ㉑	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3

*1 REFER TO "MODE SWITCH PATTERN."

*2 REFER TO "LOADING SWITCH PATTERN."

*3 REGULAR PULSE

3-14. MODE SWITCH PATTERN

MODE SWITCH ROTATING DIRECTION

(↻) CW ←——→ CCW (↺)

SWITCH POSITION (MODE)		EJECT		LOAD		FF/ REW		STOP		FWD		RVS	
SWITCH PATTERN	7	4	7	2	7	6	7	3	7	1	7	5	7
MODE SW A	×	○	×	○	×	○	×	×	×	×	×	×	×
MODE SW B	×	○	×	×	×	×	×	×	×	○	×	○	×
MODE SW C	×	×	×	○	×	×	×	○	×	○	×	×	×

○ . . . CLOSE , × . . . OPEN

3-15. LOADING SWITCH PATTERN

LOADING SWITCH ROTATING DIRECTION

(↺) CCW ←——→ CW (↻)

SWITCH POSITION	LOADING TOP		UNLOAD WAITE		DRUM START		T REEL START		LOADING END
SWITCH PATTERN	1	7	5	7	4	7	6	7	3
LOAD SW A	×	×	×	×	○	×	○	×	×
LOAD SW B	○	×	○	×	○	×	×	×	×
LOAD SW C	○	×	×	×	×	×	×	×	○

○ . . . CLOSE , × . . . OPEN

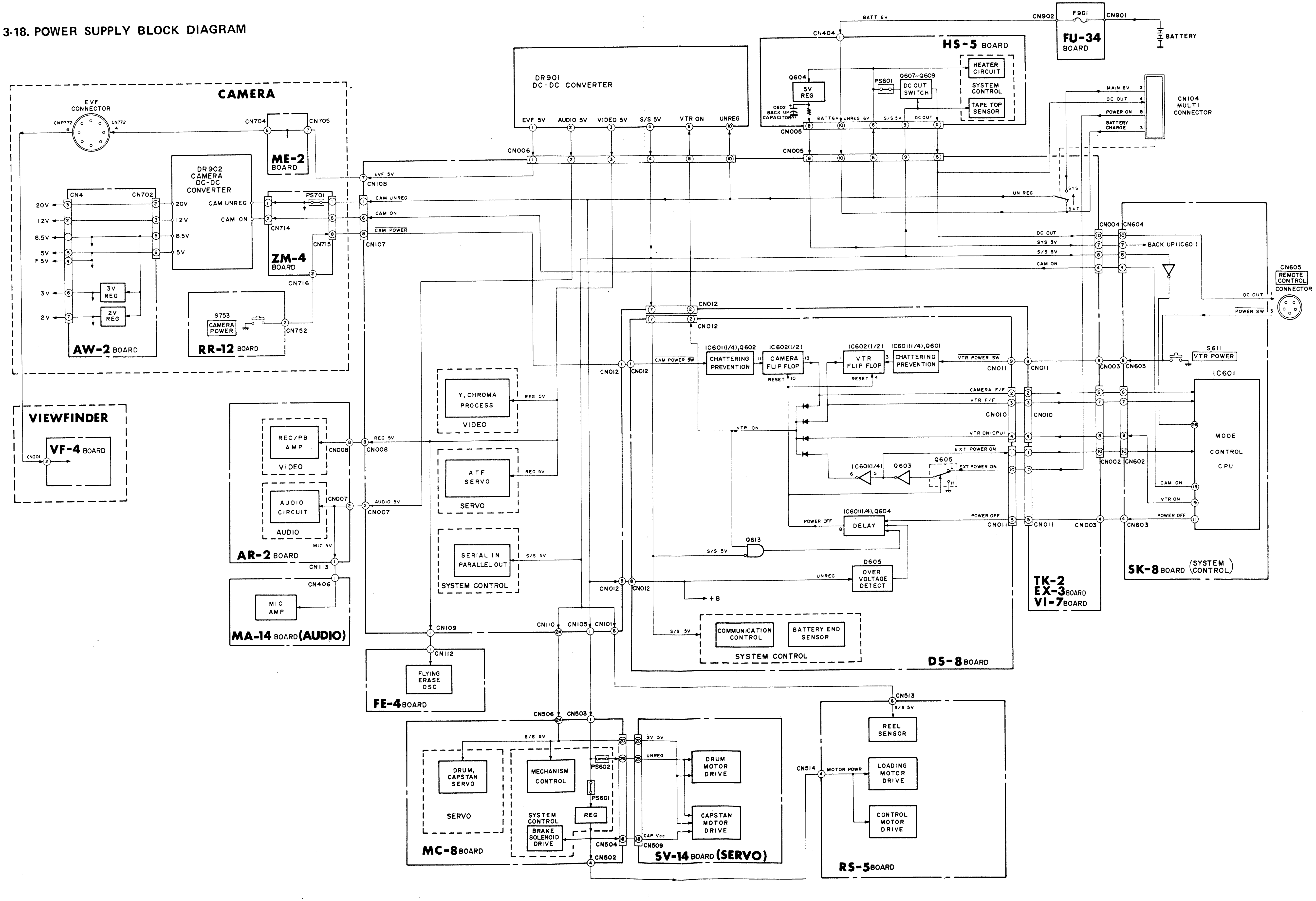
3-16. CAPSTAN SERVO OPERATION (MC-8 AND VI-7 BOARDS)

	REC	PB
CSPDA (IC502 ⑮)	CAPSTAN SPEED ERROR	CAPSTAN SPEED ERROR
CPHDA (IC502 ⑯)	CAPSTAN PHASE ERROR	Held at approx. 2.0VDC
ATF ERROR (IC106 ㉕)	Held at approx. 2.5VDC	ATF ERROR

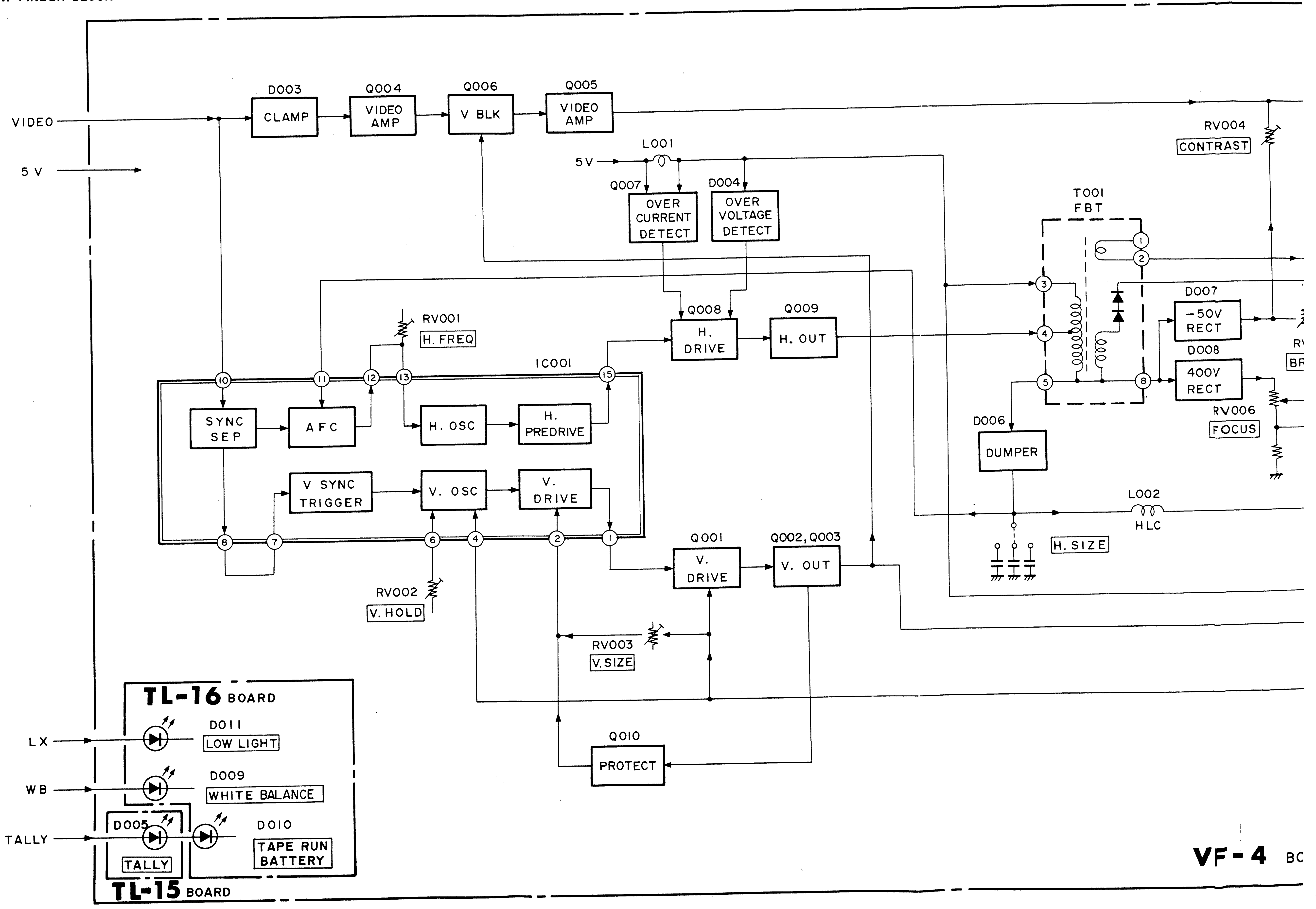
3-17. ATF SERVO PILOT SIGNAL (VI-7 BOARD)

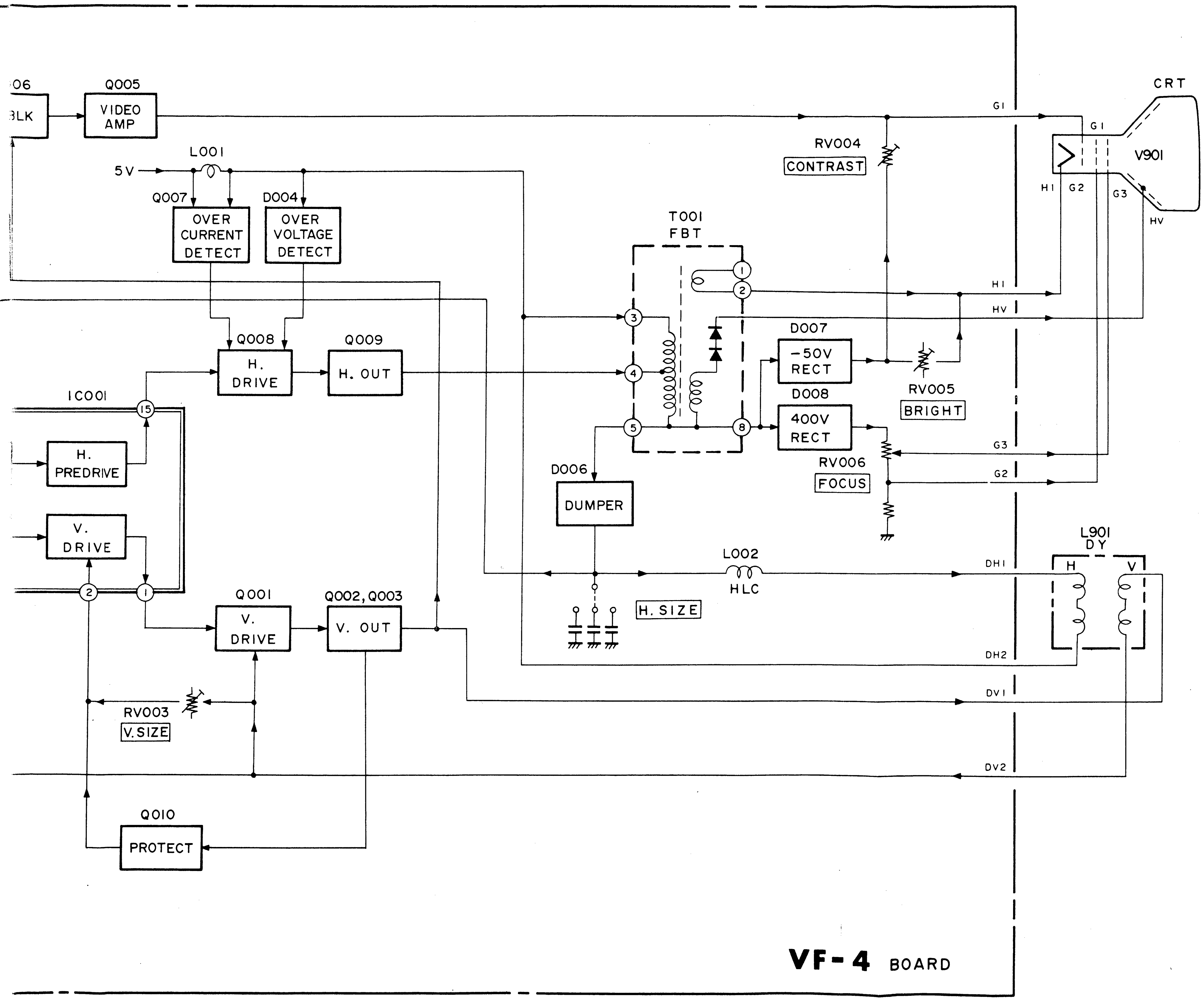
PILOT SIGNAL (IC105 ⑦)		CONTROL SIGNAL	
NAME	FREQUENCY	SEL 1 (IC105 ④)	SEL 2 (IC105 ⑤)
f_1	101.024 kHz (375/58 fH)	H	H
f_2	117.188 kHz (375/50 fH)	L	H
f_3	162.760 kHz (375/36 fH)	H	L
f_4	146.484 kHz (375/40 fH)	L	L

3-18. POWER SUPPLY BLOCK DIAGRAM


CAMERA
EVF CONNECTOR
CNP772
CN772
CN704
CN705
ME-2 BOARD
DR902 CAMERA DC-DC CONVERTER
CN4
CN702
20V
12V
8.5V
5V
F5V
3V
2V
3V REG
2V REG
AW-2 BOARD
CAM UNREG
CAM ON
PS701
CN714
CN715
ZM-4 BOARD
CN716
S753
CAMERA POWER
CN752
RR-12 BOARD
VIEWFINDER
CN001
VF-4 BOARD
DR901 DC-DC CONVERTER
EVF 5V
AUDIO 5V
VIDEO 5V
S/S 5V
VTR ON
UNREG
CN006
CN108
CN107
CAM POWER
Y, CHROMA PROCESS
VIDEO
REG 5V
ATF SERVO
SERVO
SERIAL IN PARALLEL OUT
SYSTEM CONTROL
REC/PB AMP
AUDIO CIRCUIT
AUDIO
CN008
CN007
MIC 5V
CN113
AR-2 BOARD
CN406
MIC AMP
MA-14 BOARD (AUDIO)
CN109
CN112
FLYING ERASE OSC
FE-4 BOARD
CN110
CN105
CN101
BATT 6V
CN404
HS-5 BOARD
Q604
5V REG
C602 BACK UP CAPACITOR
PS601
Q607-Q609 DC OUT SWITCH
HEATER CIRCUIT
SYSTEM CONTROL
TAPE TOP SENSOR
UNREG 6V
DC OUT
CN005
CN902
F901
CN901
FU-34 BOARD
BATTERY
MAIN 6V
POWER ON
BATTERY CHARGE
CN104 MULTI CONNECTOR
UN REG
SYS
BAT
CN004
CN604
SYS 5V
BACK UP (IC601)
CN605 REMOTE CONTROL CONNECTOR
POWER SW
S611
VTR POWER
IC601
MODE CONTROL CPU
CN003
CN603
CN002
CN602
SK-8 BOARD (SYSTEM CONTROL)
CN012
IC601(1/4),Q602 CHATTERING PREVENTION
IC602(1/2) CAMERA FLIP FLOP
IC602(1/2) VTR FLIP FLOP
IC601(1/4),Q601 CHATTERING PREVENTION
CAM POWER SW
VTR POWER SW
RESET
CN011
CAMERA F/F
VTR F/F
CN010
VTR ON (CPU)
EXT POWER ON
IC601(1/4)
Q603
Q605
IC601(1/4),Q604 DELAY
POWER OFF
Q613
S/S 5V
D605 OVER VOLTAGE DETECT
+B
COMMUNICATION CONTROL
BATTERY END SENSOR
SYSTEM CONTROL
DS-8 BOARD
TK-2
EX-3 BOARD
VI-7 BOARD
CN506
CN503
DRUM, CAPSTAN SERVO
SERVO
MECHANISM CONTROL
PS602
PS601
REG
SYSTEM CONTROL
BRAKE SOLENOID DRIVE
CN504
CN502
MC-8 BOARD
5V
CAP Vcc
CN509
DRUM MOTOR DRIVE
CAPSTAN MOTOR DRIVE
SV-14 BOARD (SERVO)
CN513
CN514
MOTOR POWR
REEL SENSOR
LOADING MOTOR DRIVE
CONTROL MOTOR DRIVE
RS-5 BOARD

3-19. VIEW FINDER BLOCK DIAGRAM


VIDEO
5 V
D003
CLAMP
Q004
VIDEO AMP
Q006
V BLK
Q005
VIDEO AMP
RV004
CONTRAST
L001
5 V
Q007
OVER CURRENT DETECT
D004
OVER VOLTAGE DETECT
T001
FBT
1
2
3
4
5
8
D007
-50V RECT
D008
400V RECT
RV006
FOCUS
Q008
H. DRIVE
Q009
H. OUT
RV001
H. FREQ
IC001
10
11
12
13
15
SYNC SEP
AFC
H. OSC
H. PREDRIVE
V SYNC TRIGGER
V. OSC
V. DRIVE
8
7
6
4
2
1
RV002
V. HOLD
Q001
V. DRIVE
Q002, Q003
V. OUT
D006
DUMPER
L002
HLC
H. SIZE
RV003
V.SIZE
Q010
PROTECT
TL-16 BOARD
D011
LOW LIGHT
D009
WHITE BALANCE
D005
TALLY
D010
TAPE RUN BATTERY
TL-15 BOARD
LX
WB
TALLY
VF-4



06
BLK
Q005
VIDEO AMP
L001
5V
Q007
OVER CURRENT DETECT
D004
OVER VOLTAGE DETECT
Q008
H. DRIVE
Q009
H. OUT
IC001
15
H. PREDRIVE
V. DRIVE
2
1
Q001
V. DRIVE
Q002, Q003
V. OUT
RV003
V.SIZE
Q010
PROTECT
T001
FBT
1
2
3
4
5
8
D007
−50V RECT
D008
400V RECT
D006
DUMPER
RV004
CONTRAST
RV005
BRIGHT
RV006
FOCUS
L002
HLC
H. SIZE
G1
H1
HV
G3
G2
DH1
DH2
DV1
DV2
CRT
V901
G1
H1
G2
G3
HV
L901
DY
H
V
VF-4 BOARD

3-20. TIMING GENERATOR (IC707) TERMINAL FUNCTIONS (CP-11 BOARD)

Pin No.	Pin Name	I/O	Function
1	SP1	O	Sampling hold pulse for colour separation
2	SHD	O	Sampling hold pulse for imager output
3	SHP	O	Sampling hold pulse for imager output
4	XV4	O	Imager drive pulse
5	XV2	O	Imager drive pulse
6	Vss		Power supply
7	HTSG	I	Test signal input (GND)
8	XV3	O	Imager drive pulse
9	XV1	O	Imager drive pulse
10	XSG2	O	Imager drive pulse
11	XSG1	O	Imager drive pulse
12	XPG	O	Imager drive pulse
13	XH2	O	Imager drive pulse
14	XH1	O	Imager drive pulse
15	A2	O	External ROM address output
16	A1	O	External ROM address output
17	A0	O	External ROM address output
18	A3	O	External ROM address output
19	VDD		Power supply
20	A4	O	External ROM address output
21	A5	O	External ROM address output
22	A6	O	External ROM address output
23	CM	I	Test signal input (GND)
24	D4	I	ROM data input
25	D3	I	ROM data input
26	D2	I	ROM data input
27	D1	I	ROM data input
28	XVCT	O	Modulation pulse for ROM power supply
29	TEST	I	Test signal input (GND)
30	CP	I	Clock input
31	Vss		Power supply
32	XCK	O	Waveform shaper output
33	CK	I	Waveform shaper input
34	FLD	I	Frame sync signal
35	HD	I	Horizontal sync signal
36	CL	O	Clock output for CX7930
37	VAA	O	Vertical preblanking signal
38	HBLK	O	Horizontal preblanking signal
39	ID	O	ID signal for line sequential scan signal
40	CLP3	O	Clamping pulse
41	CLP2	O	Clamping pulse
42	CLP1	O	Clamping pulse
43	VDD		Power supply
44	XDL2	O	CCD delay-line drive pulse
45	XDL1	O	CCD delay-line drive pulse
46	SH2	O	CCD delay-line sampling hold pulse
47	SH1	O	CCD delay-line sampling hold pulse
48	SP2	O	Sampling hold pulse for colour separation

3-21. SYNC GENERATOR (IC708) TERMINAL FUNCTIONS (CP-11 BOARD)

Pin No.	Pin Name	I/O	Function
1	VRI	I	Vertical reset input
2	OFLD1	O	First field output
3	OBF/COLB	O	Burst flag/colour blanking output
4	OSYNC	O	Composite sync signal output
5	OFLD	O	Even/odd field select output
6	OBLK	O	Composite blanking signal output
7	OLALT	O	Line select output
8	OHD	O	Horizontal drive output
9	4*f*sc OUT	O	4*f*sc output
10	4*f*sc IN	I	4*f*sc input
11	NC		
12	OVD	O	Vertical drive output
13	NC		
14	Vss		GND terminal
15	LALTRI	I	Line select reset input
16	TEST	I	Test input
17	NC		
18	NC		
19	OSC	O	Subcarrier output
20	EXT	I	Internal/external mode select
21	MODE1	I	System select input-1
22	MODE2	I	System select input-2
23	HRI	I	Horizontal reset input
24	H COM OUT	O	Phase comparator output
25	CL OUT	O	Clock output
26	CL IN	I	Clock input
27	OFH	O	Horizontal drive frequency output
28	VDD		Power supply terminal (IC board)

3-22. MODE CONTROL CPU (IC601) TERMINAL FUNCTIONS (SK-8 BOARD)

Pin No.	Pin Name	I/O	Function
1	NC		
2	MATRIX OUT control-C	O	Output for matrix decoder
3	MATRIX OUT control-B	O	Output for matrix decoder
4	MATRIX OUT control-A	O	Output for matrix decoder
5	SI	I	Serial input data on inner bus
6	SO	O	Serial output data on inner bus
7	$\overline{\text{SCK}}$	I/O	Inner bus clock
8	START	O	Communication-CPU start flag output
9	ZOOM TEL	O	Camera zooming-in control
10	LED STB	O	Data strobe for LED display serial-in/parallel-out (CX7991)
11	POWER OFF	O	Power-off control
12	MECHACON CS	O	High while communicating with mechanism-control CPU
13	VA S/P STB	O	Data strobe for audio/video serial-in/parallel-out (CX7991)
14	Not used		
15	$\overline{\text{D SERVO CS}}$	O	High while communicating with servo IC (CX20035)
16	SYSTEM RESET	O	Output to reset system when power supply goes on
17	ZOOM WIDE	O	Camera zooming-out control
18	CAM ON	O	Camera power supply (camera D/D CON) control signal
19	VTR ON	O	High while VTR power supply is on
20	X2		Not used
21	X1	(I)	Not used
22	V_{SS}	I	GND
23	V_{LC3}	O	LCD drive voltage control
24	V_{LC2}	O	LCD drive voltage control
25	V_{LC1}	O	LCD drive voltage control
26	V_{DD}	I	SYS 5V (unswitched)
27	COM3	O	LCD common signal output
28	COM2	O	LCD common signal output
29	COM1	O	LCD common signal output
30	COM0	O	LCD common signal output
31 | 44	Not used		
45	S9	O	LCD segment signal output
46	S8	O	LCD segment signal output
47	S7	O	LCD segment signal output
48	S6	O	LCD segment signal output
49	S5	O	LCD segment signal output
50	S4	O	LCD segment signal output
51	S3	O	LCD segment signal output
52	S2	O	LCD segment signal output
53	S1	O	LCD segment signal output
54	S0	O	LCD segment signal output
55	INIT1	I	An external interruption request (SYSTEM SYNC input) from the servo IC (CX20035).
56	RESET	I	Mode control reset
57	CL1	I	External system clock input
58	V_{DD}	I	SYS 5V (unswitched)
59	Not used		
60	SCAN IN D	I	Matrix input
61	SCAN IN C	I	Matrix input
62	SCAN IN B	I	Matrix input
63	SCAN IN A	I	Matrix input
64	MATRIX OUT control-D	I	Output for matrix decoder

3-23. MECHANISM CONTROL CPU (IC601) TERMINAL FUNCTIONS (MC-8 BOARD)

Pin No.	Pin Name	I/O	Function
1	FG4	O	Capstan FG count-down by 1/4
2	FG8	O	Capstan FG count-down by 1/8
3	CM CONT (CW)	O	Control-motor revolution (clockwise/counterclockwise) control CW
4	CM CONT (CCW)	O	Control-motor revolution (clockwise/counterclockwise) control CCW
5	LM CONT (CW)	O	Loading-motor revolution (clockwise/counterclockwise) control CW
6	LM CONT (CCW)	O	Loading-motor revolution (clockwise/counterclockwise) control CCW
7	$\overline{\text{BRAKE START}}$	O	Main brake start control
8	$\overline{\text{BRAKE HOLD}}$	O	Main brake hold control
9	$\overline{\text{CAP ON}}$	O	Capstan-on control
10	CAP CW/$\overline{\text{CCW}}$	O	Capstan revolution (clockwise/counterclockwise) control
11	NC		
12	SEL 1	O	ATF pilot select-1
13	SEL 2	O	ATF pilot select-2
14	TS A	O	ATF error voltage hold
15	TS B	O	ATF lock hold
16	NC		
17	NC		
18	S/S 5V	I	S/S 5V power supply (Switched)
19	NC		
20	$\overline{\text{DRUM ON}}$	O	Drum-on control
21	$\overline{\text{TAPE T/E LED}}$	O	Top/end-of-tape LED control
22	RP PB MODE	O	RP amplifier control
23	$\overline{\text{FEP}}$	O	Flying erase-head control
24	RF SW P	I	RF switching pulse input
25	MECHACON CS	I	Mode-control-CPU communication request
26	$\overline{\text{CAP PULSE}}$	O	Capstan drive voltage maximizing signal
27	CUE + REVIEW	O	High for cue/review operation
28	$\overline{\text{MATRIX OUT 1}}$	O	Matrix output
29	$\overline{\text{MATRIX OUT 2}}$	O	Matrix output
30	NC		
31	$\overline{\text{MATRIX OUT 3}}$	O	Matrix output
32	MATRIX IN 1	I	Matrix input
33	MATRIX IN 2	I	Matrix input
34	MATRIX IN 3	I	Matrix input
35	MATRIX IN 4	I	Matrix input
36	EX	I	Clock generator input
37	X	O	Clock generator output
38	$\overline{\text{RESET}}$	I	Mechanism-control-CPU reset signal ($\overline{\text{system reset}}$) issued from mode-control CPU
39	FG	I	Capstan FG input
40	NC		
41	NC		
42	GND		GND
43	NC		
44	SCK	O	8 clock output connected to inner-bus SCK line when MECHACONCS is at High.
45	SO	I	Input terminal of serial data from mode-control CPU, which is connected to inner-bus SO line
46	SI	O	Output terminal of serial data to mode-control CPU, which is connected to inner-bus SI line
47	D SERVO RESET	O	Reset signal for servo control IC (CX20035)
48	FG 2	O	Capstan FG count-down by 1/2

3-24. COMMUNICATION CONTROL CPU (IC603) TERMINAL FUNCTIONS (DS-8 BOARD)

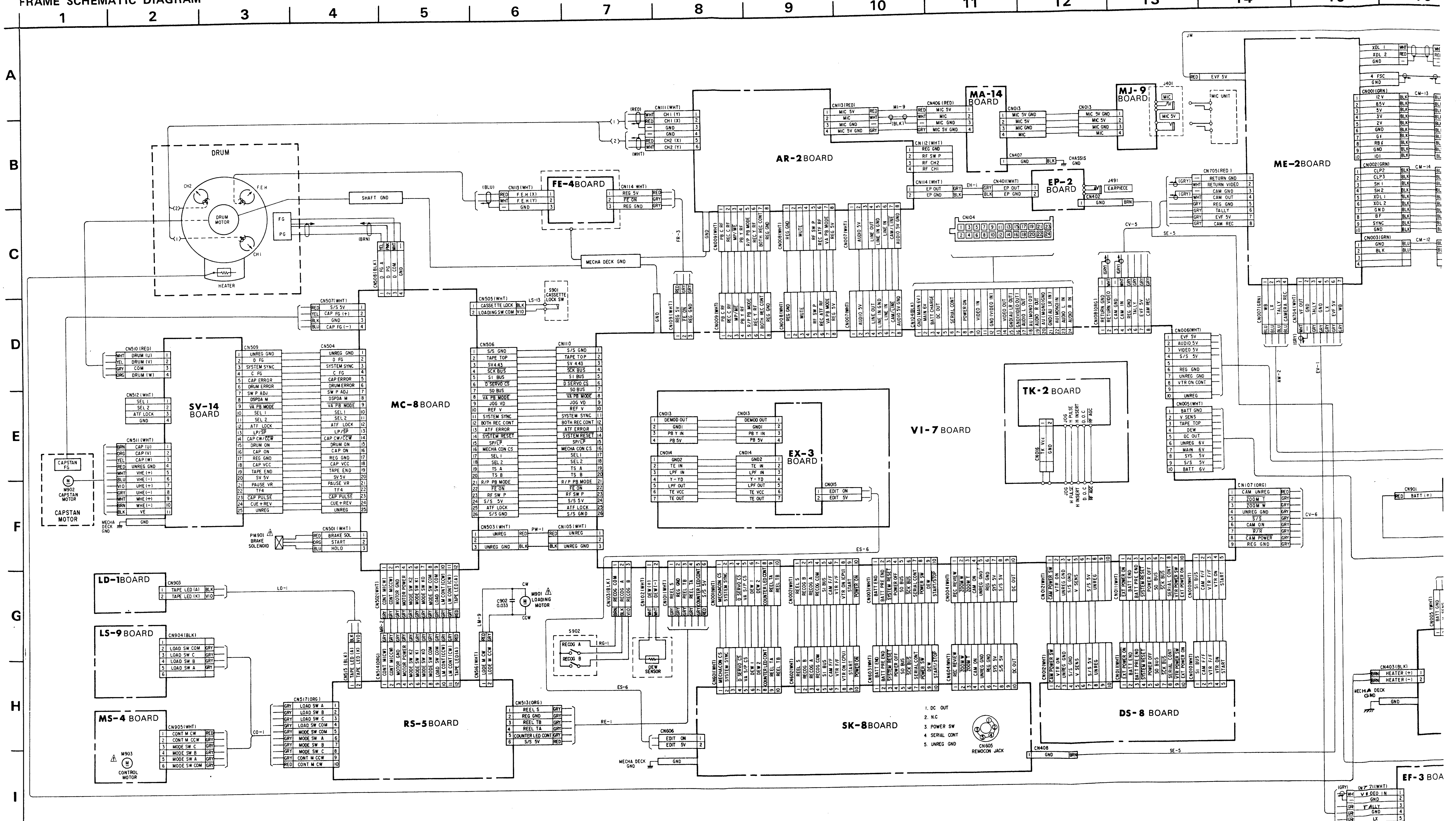
Pin No.	Pin Name	I/O	Function
1	SCK EN	O	Clock output enable
2	$\overline{\text{SCK OUT}}$	O	Clock issued to inner bus
3	INVALID FLAG	O	Not used
4	START FLAG	I	Communication start from mode-control CPU
5	MODE	I	Open
6	X	O	Clock generator output
7	EX	I	Clock generator input
8	Vss	I	GND
9	VTR AREA	O	Data communication time at High (Inner bus → External bus)
10	CAM/TT AREA	O	Data communication time at High (External bus → Inner bus)
11	TT AREA	O	Not used
12	CAM AREA	O	Not used
13	START BIT	O	Start bit on external CTRL-L bus
14	CAM CS		Not used
15	$\overline{\text{SYSTEM RESET}}$	I	Communication control CPU reset issued from mode-control CPU
16	Vcc		S/S 5V power supply

3-25. SERIAL-IN/PARALLEL-OUT FOR AUDIO/VIDEO SIGNAL (IC107) TERMINAL FUNCTIONS (VI-7 BOARD)

Pin No.	Pin Name	I/O	Function
1	SP/$\overline{\text{LP}}$ (P1)	O	SP/$\overline{\text{LP}}$ mode select signal
2	JOG (P2)	O	JOG mode
3	MP/$\overline{\text{ME}}$ (P3)	O	Type-of-tape select
4	VA PB MODE (P4)	O	Playback mode (High)
5	CAM/$\overline{\text{LINE}}$ (P5)	O	Camera/line select
6	CAM REC (P6)	O	Camera recording mode signal issued to camera
7	TALLY (P7)	O	Tally LED
8	$\overline{\text{VA PB MODE}}$ (P8)	O	Playback mode (Low)
9	VIDEO MUTE (P9)	O	Video mute control
10	Vss		GND
11	AUDIO MUTE (P10)	O	Audio mute control
12	(P11)	O	Not used
13	SYS RESET (P12)	O	System reset output
14	SO		Not used
15	$\overline{\text{SET}}$		Connected to VDD
16	$\overline{\text{RESET}}$		Connected to VDD
17	STB	I	If is connected to the V/A SP STB (strobe) coming from the mode control CPU, and it latches the data to the internal resistor at "H".
18	SI (DATA)	I	Input terminal of serial data from mode-control CPU, which is connected to inner bus SO line
19	CLK	I	Clock input from mode-control CPU, which is connected to inner bus SCK line
20	VDD		S/S 5V

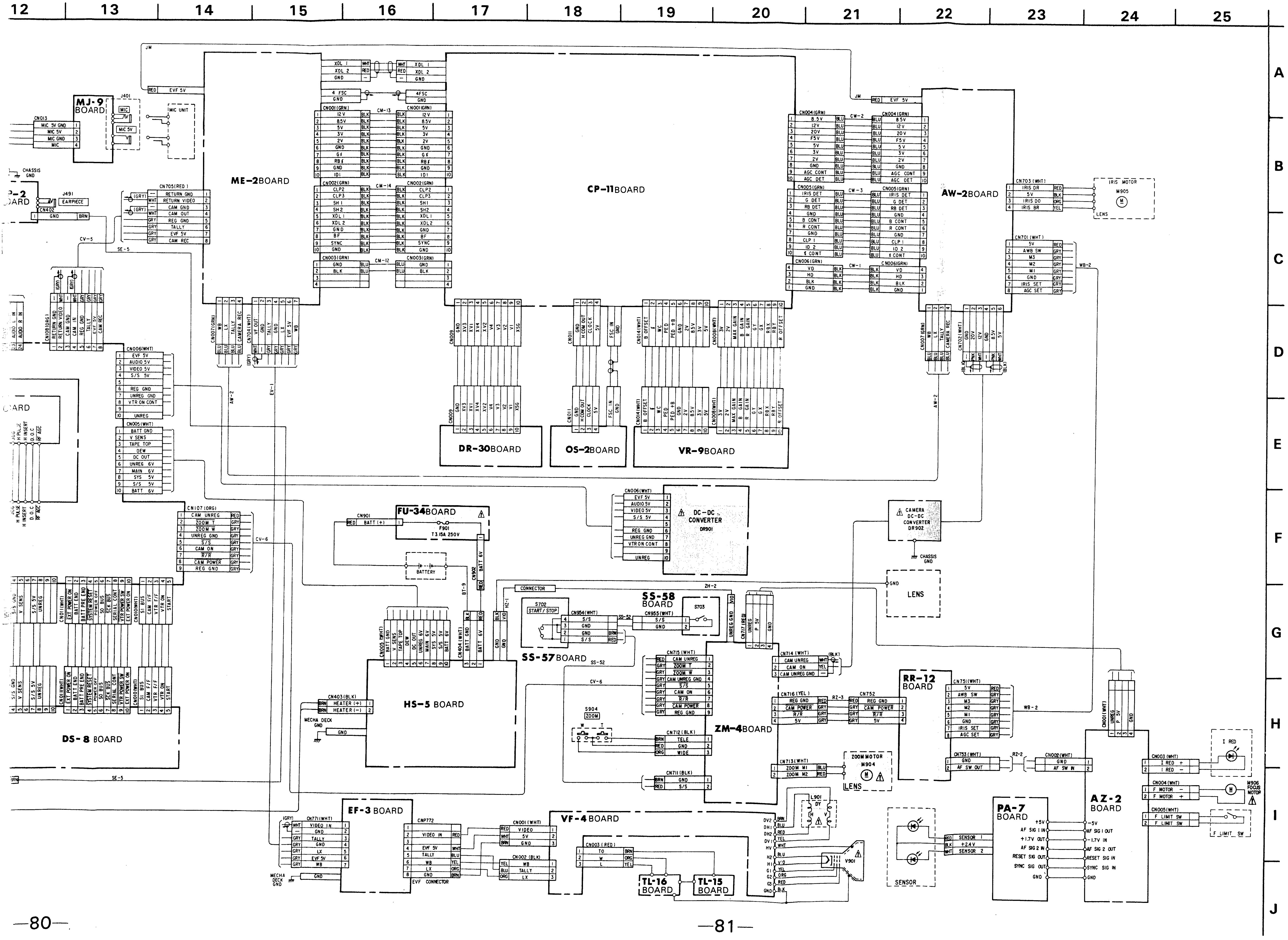
SECTION 4
SCHEMATIC DIAGRAM AND PRINTED WIRING BOARDS

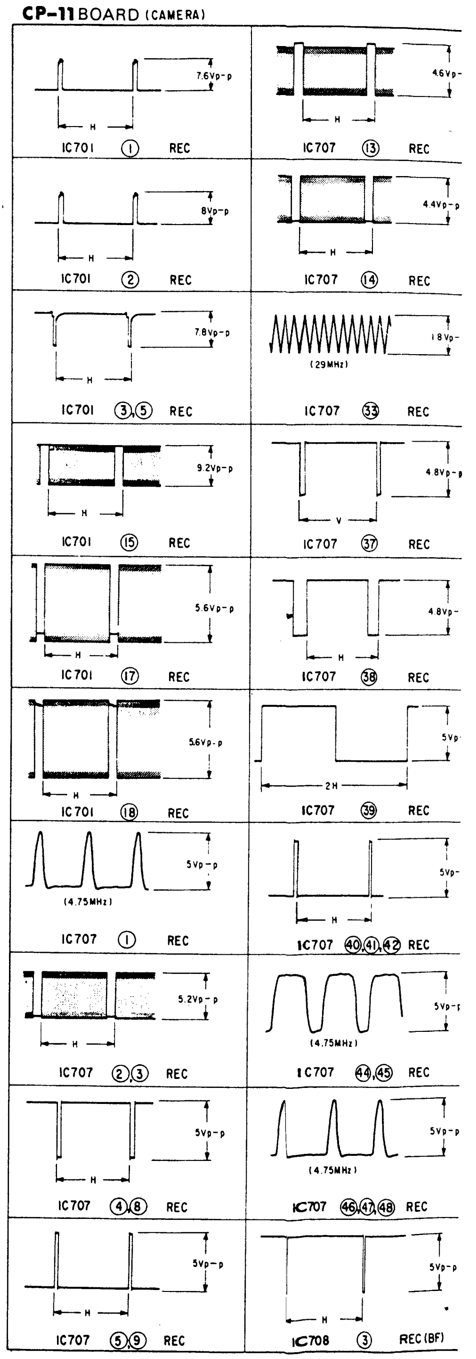
FRAME SCHEMATIC DIAGRAM

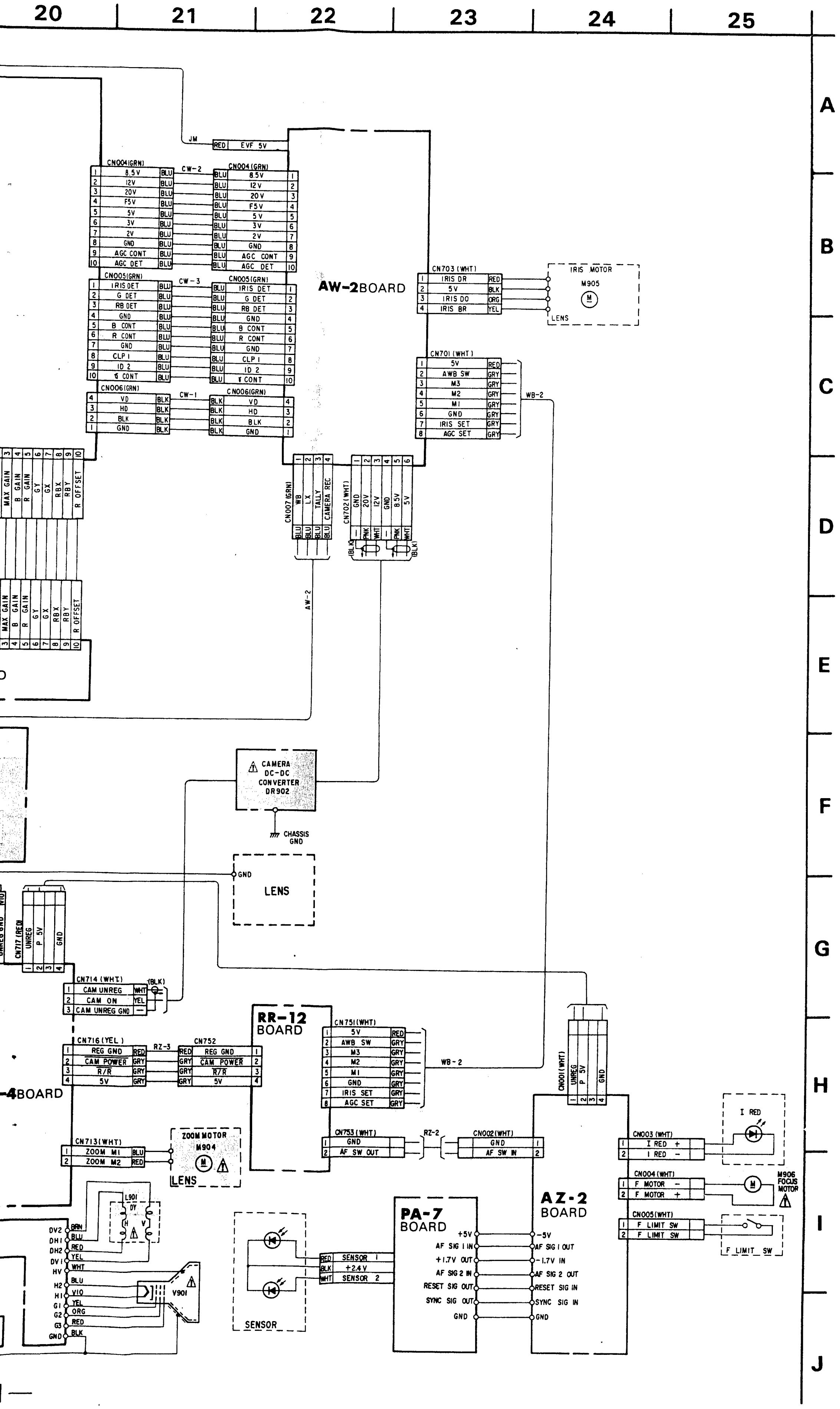

DRUM
DRUM MOTOR
HEATER
FE-4 BOARD
AR-2 BOARD
MA-14 BOARD
MJ-9 BOARD
EP-2 BOARD
ME-2 BOARD
SV-14 BOARD
MC-8 BOARD
CAPSTAN MOTOR
M902 CAPSTAN MOTOR
EX-3 BOARD
VI-7 BOARD
TK-2 BOARD
LD-1 BOARD
LS-9 BOARD
MS-4 BOARD
M903 CONTROL MOTOR
RS-5 BOARD
M901 LOADING MOTOR
PM901 BRAKE SOLENOID
S902
DEW SENSOR
SK-8 BOARD
1. DC OUT
2. N.C
3. POWER SW
4. SERIAL CONT
5. UNREG GND
CN605 REMOCON JACK
DS-8 BOARD
EF-3 BOA
MECHA DECK GND

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

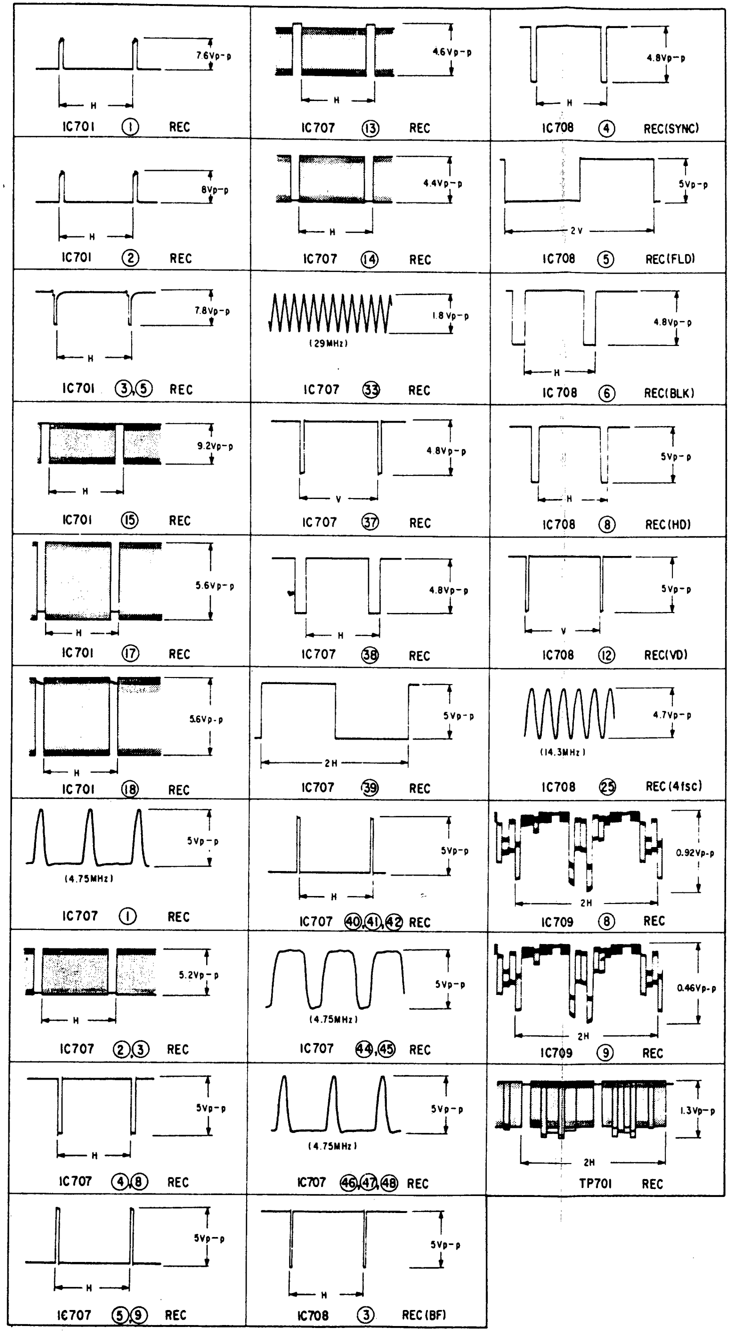
When indicating parts by reference number, please include the board name.


12
13
14
15
16
17
18
19
20
21
22
23
24
25
A
B
C
D
E
F
G
H
I
J
MJ-9 BOARD
ME-2 BOARD
CP-11 BOARD
AW-2 BOARD
DR-30 BOARD
OS-2 BOARD
VR-9 BOARD
DC-DC CONVERTER DR901
CAMERA DC-DC CONVERTER DR902
FU-34 BOARD
F901 T3.15A 250V
BATTERY
SS-58 BOARD
SS-57 BOARD
HS-5 BOARD
ZM-4 BOARD
RR-12 BOARD
DS-8 BOARD
EF-3 BOARD
VF-4 BOARD
TL-16 BOARD
TL-15 BOARD
PA-7 BOARD
AZ-2 BOARD
LENS
SENSOR
ZOOM MOTOR M904
IRIS MOTOR M905
M906 FOCUS MOTOR
I RED
F LIMIT SW
S702 START/STOP
S703
S904 ZOOM
J401
J491 EARPIECE
CHASSIS GND
MECHA DECK GND
EVF CONNECTOR
L901 DY
V901
CM-13
CM-14
CM-12
CW-2
CW-3
CW-1
CV-5
CV-6
SE-5
SS-52
BT-9
ZH-2
RZ-2
RZ-3
WB-2
AW-2
EV-1
JM
EVF 5V
CONNECTOR

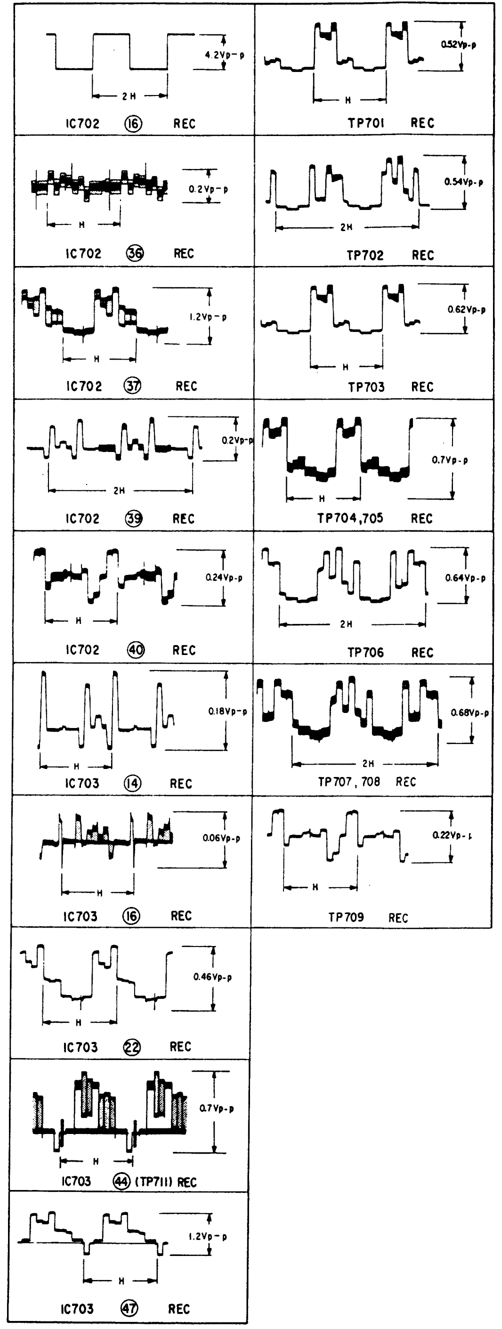

CP-11 BOARD (CAMERA)
IC701 ① REC 7.6Vp-p
IC707 ⑬ REC 4.6Vp-p
IC701 ② REC 8Vp-p
IC707 ⑭ REC 4.4Vp-p
IC701 ③,⑤ REC 7.8Vp-p
IC707 ㉝ REC 1.8Vp-p (29MHz)
IC701 ⑮ REC 9.2Vp-p
IC707 ㊲ REC 4.8Vp-p
IC701 ⑰ REC 5.6Vp-p
IC707 ㊳ REC 4.8Vp-p
IC701 ⑱ REC 5.6Vp-p
IC707 ㊴ REC 5Vp 2H
IC707 ① REC 5Vp-p (4.75MHz)
IC707 ㊵,㊶,㊷ REC 5Vp-p
IC707 ②,③ REC 5.2Vp-p
IC707 ㊹,㊺ REC 5Vp-p (4.75MHz)
IC707 ④,⑧ REC 5Vp-p
IC707 ㊻,㊼,㊽ REC 5Vp-p (4.75MHz)
IC707 ⑤,⑨ REC 5Vp-p
IC708 ③ REC(BF) 5Vp-p
H


20
21
22
23
24
25
A
B
C
D
E
F
G
H
I
J
AW-2BOARD
CN004(GRN)
CN005(GRN)
CN006(GRN)
CW-2
CW-3
CW-1
8.5V
12V
20V
F5V
5V
3V
2V
GND
AGC CONT
AGC DET
IRIS DET
G DET
RB DET
B CONT
R CONT
CLP 1
ID 2
E CONT
VD
HD
BLK
JM
EVF 5V
CN703 (WHT)
IRIS DR
IRIS DO
IRIS BR
IRIS MOTOR
M905
LENS
CN701 (WHT)
AWB SW
M3
M2
M1
IRIS SET
AGC SET
WB-2
CN007(GRN)
CN702(WHT)
WB
LX
TALLY
CAMERA REC
AW-2
MAX GAIN
R GAIN
B GAIN
GY
RBY
R OFFSET
CAMERA DC-DC CONVERTER DR902
CHASSIS GND
GND
LENS
CN714 (WHT)
CAM UNREG
CAM ON
CAM UNREG GND
CN716 (YEL)
REG GND
CAM POWER
R/R
RZ-3
CN752
RR-12 BOARD
CN751(WHT)
-4BOARD
CN713(WHT)
ZOOM M1
ZOOM M2
ZOOM MOTOR
M904
LENS
L901
DY
V901
CN753 (WHT)
AF SW OUT
RZ-2
CN002(WHT)
AF SW IN
CN001(WHT)
UNREG
P 5V
AZ-2 BOARD
CN003 (WHT)
I RED +
I RED −
I RED
CN004 (WHT)
F MOTOR +
F MOTOR −
M906 FOCUS MOTOR
CN005(WHT)
F LIMIT SW
PA-7 BOARD
+5V
AF SIG 1 IN
+1.7V OUT
AF SIG 2 IN
RESET SIG OUT
SYNC SIG OUT
AF SIG 1 OUT
1.7V IN
AF SIG 2 OUT
RESET SIG IN
SYNC SIG IN
SENSOR 1
+2.4V
SENSOR 2
SENSOR
DV2
DH1
DH2
DV1
HV
H2
H1
G1
G2
G3
BRN
BLU
RED
YEL
WHT
VIO
ORG
BLK
GRY

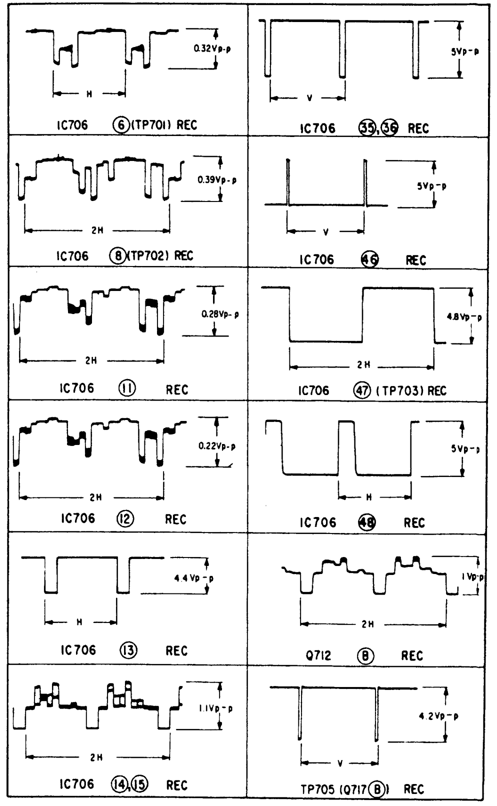
CP-11 BOARD (CAMERA)



ME-2 BOARD (CAMERA)



AW-2 BOARD (CAMERA)



CAMERA (1)

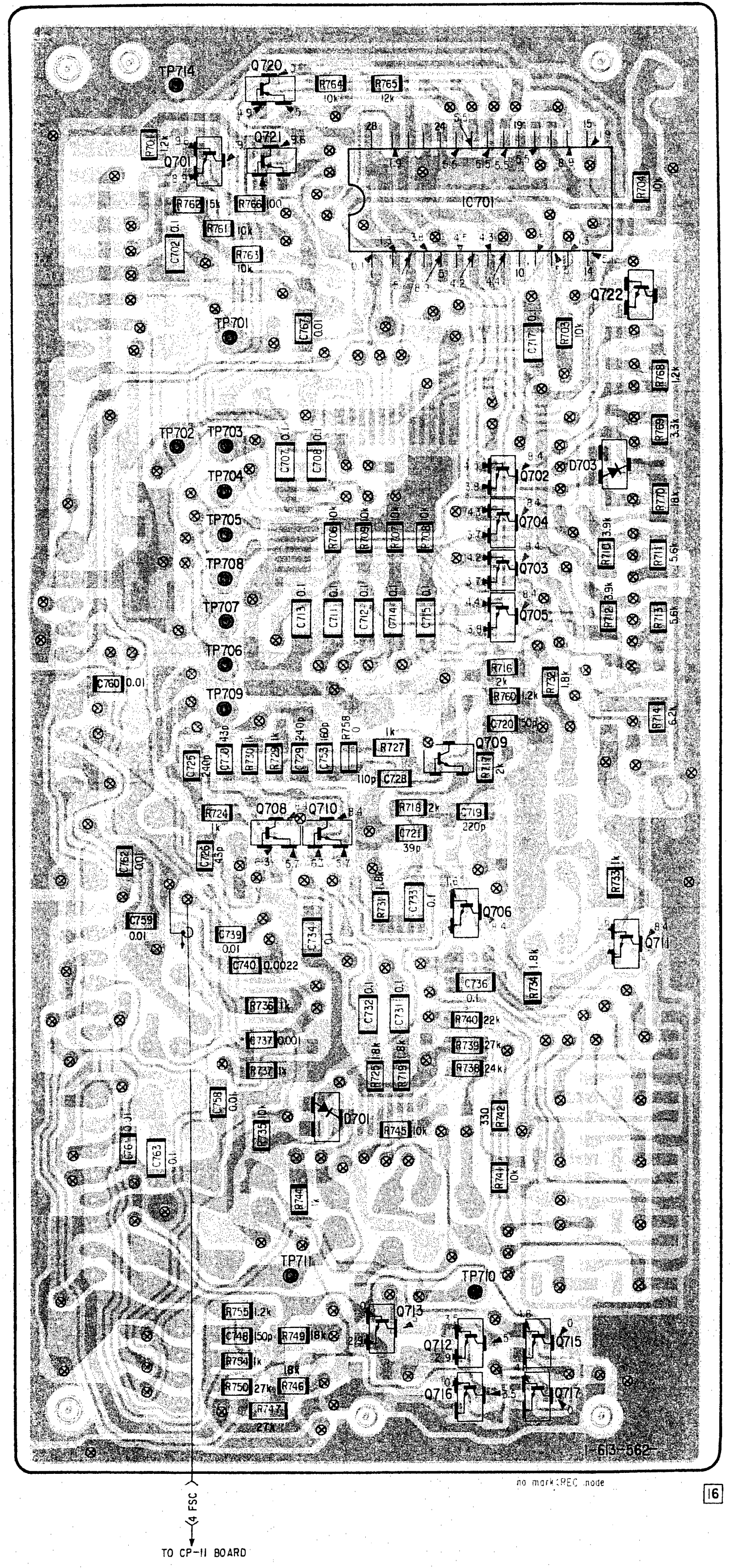
ZM-4 (ZOOM MOTOR DRIVE), RR-12 (SWITCH), ME-2 (MATRIX/ENCODER), EF-3 (EVF CONNECTOR), AZ-2 (MOTOR DRIVE, AUTO FOCUS PROCESS), PA-7 (IRED), SS-58 (SWITCH), SS-57 (SWITCH) PRINTED WIRING BOARDS

– Ref. No. AZ-2, SS-57, SS-58 BOARD : 1000 series, ME-2 BOARD : 3000 series, FE-3 BOARD : 5000 series, PA-7 BOARD : 6000 series, AM-4, RR-12 BOARD : 7000 series –

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

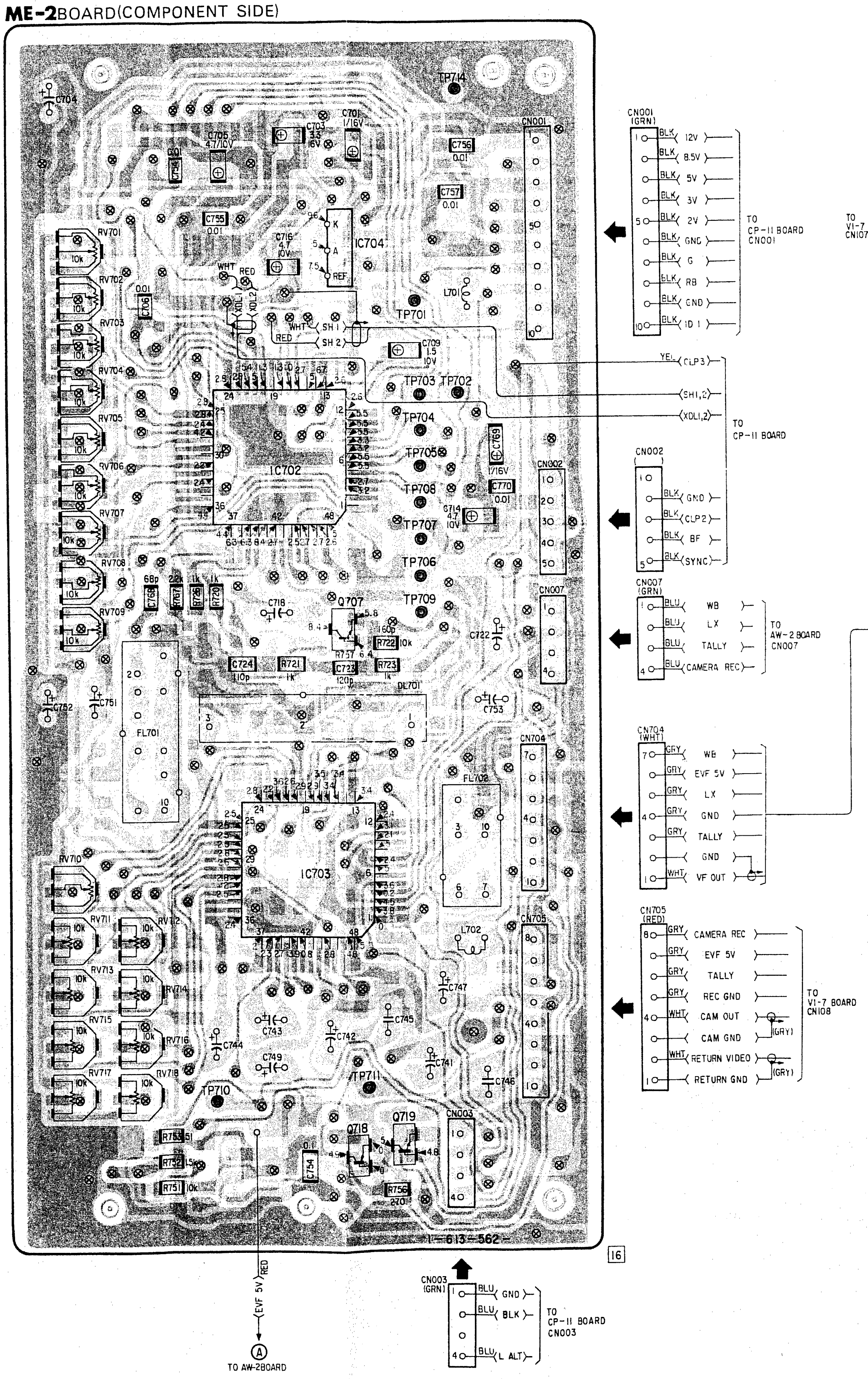
A B C D E F G H I J

ME-2 BOARD (SOLDER SIDE)

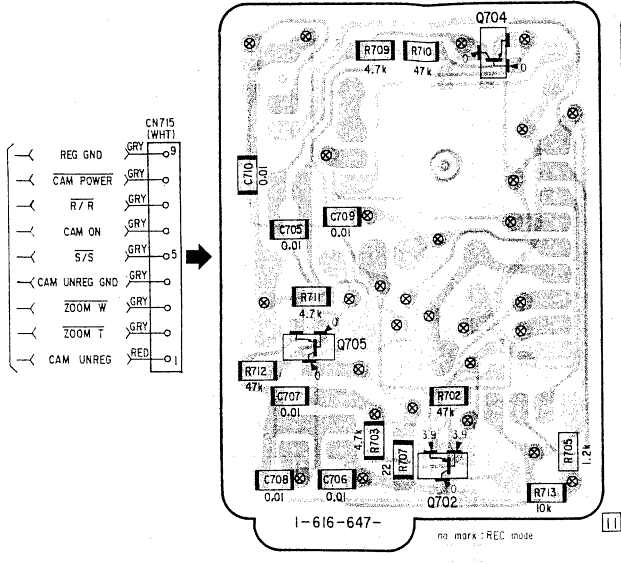

Q720
Q721
Q701
Q722
IC701
Q702
Q703
Q704
Q705
D703
Q709
Q708
Q710
Q706
Q711
Q707
Q701
Q713
Q712
Q715
Q716
Q717
TP714
TP701
TP702
TP703
TP704
TP705
TP708
TP707
TP706
TP709
TP711
TP710
C760 0.01
C759 0.01
R727 1k
1-613-562-
no mark : REC mode
4 FSC
TO CP-11 BOARD
16

Q, IC	D	ADJ	TP
			714
720			
701,721			
IC701			
IC704		RV701	
722			
		RV702	701
		RV703	
		RV704	702 703
702	703		704
		RV705	
704 IC702			705
		RV706	706
703			
705		RV707	707
			708
			709
709			
708,710			
706			
711			
IC703			
		RV710	
	701	RV712, RV711	
		RV714, RV713	
		RV716, RV715	
		RV718, RV717	711 710
713 719 712 718 715			
716,717			
Q,IC	D	ADJ	TP

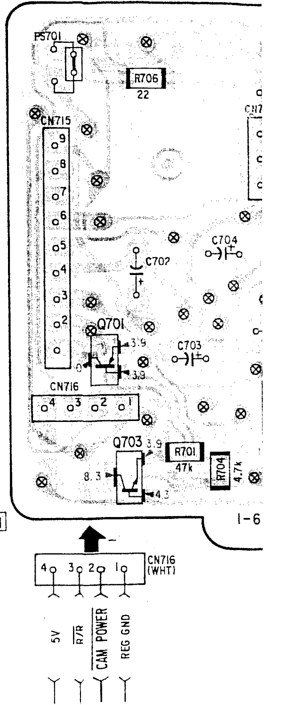
ME-2 BOARD (COMPONENT SIDE)


IC704
IC702
IC703
RV701
RV702
RV703
RV704
RV705
RV706
RV707
RV708
RV709
RV710
RV711
RV712
RV713
RV714
RV715
RV716
RV717
RV718
FL701
FL702
L701
L702
Q707
Q718
Q719
TP714
TP701
TP702
TP703
TP704
TP705
TP708
TP707
TP706
TP709
TP710
TP711
CN001
CN002
CN007
CN704
CN705
CN003
CN001 (GRN)
1 BLK 12V
BLK 8.5V
BLK 5V
BLK 3V
5 BLK 2V
BLK GND
BLK G
BLK RB
BLK GND
10 BLK ID 1
TO CP-11 BOARD CN001
YEL CLP3
SH1,2
XDL1,2
TO CP-11 BOARD
CN002
1
BLK GND
BLK CLP2
BLK BF
5 BLK SYNC
CN007 (GRN)
1 BLU WB
BLU LX
BLU TALLY
4 BLU CAMERA REC
TO AW-2 BOARD CN007
CN704 (WHT)
7 GRY WB
GRY EVF 5V
GRY LX
4 GRY GND
GRY TALLY
GND
1 WHT VF OUT
CN705 (RED)
8 GRY CAMERA REC
GRY EVF 5V
GRY TALLY
GRY REC GND
4 WHT CAM OUT
CAM GND
WHT RETURN VIDEO
1 RETURN GND
(GRY)
(GRY)
TO VI-7 BOARD CN108
1-613-562-
16
EVF 5V
RED
A
TO AW-2BOARD
CN003 (GRN)
1 BLU GND
BLU BLK
4 BLU L ALT
TO CP-11 BOARD CN003

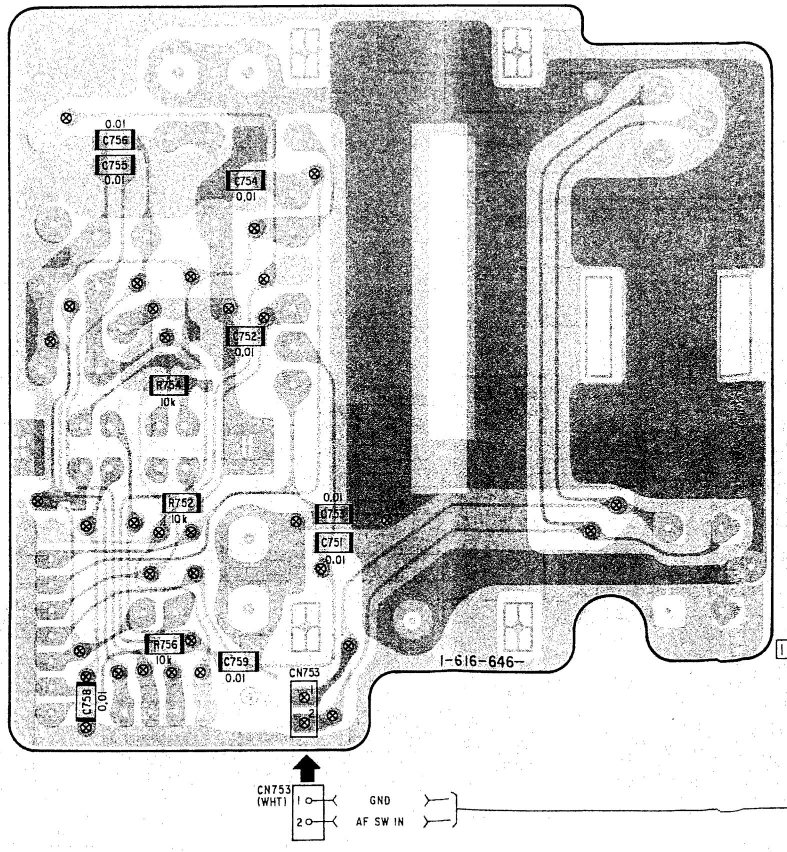
ZM-4 BOARD (SOLDER SIDE)


TO VI-7 BOARD CN107
REG GND
CAM POWER
R/R
CAM ON
S/S
CAM UNREG GND
ZOOM W
ZOOM T
CAM UNREG
CN715 (WHT)
GRY 9
GRY
GRY
GRY
GRY 5
GRY
GRY
GRY
RED 1
Q704
Q705
Q702
R709 4.7k
R710 47k
C710 0.01
C705 0.01
C709 0.01
R711 4.7k
R712 47k
C707 0.01
R702 47k
R703 4.7k
R707 22
R705 1.2k
C708 0.01
C706 0.01
R713 10k
1-616-647-
no mark : REC mode
11

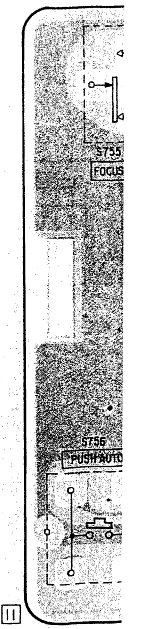
ZM-4 BOARD (COMPONE


PS701
R706 22
CN715
C704
C702
Q701
C703
CN716
Q703
R701 47k
R704 4.7k
1-6
CN716 (WHT)
4 3 2 1
5V
R/R
CAM POWER
REG GND

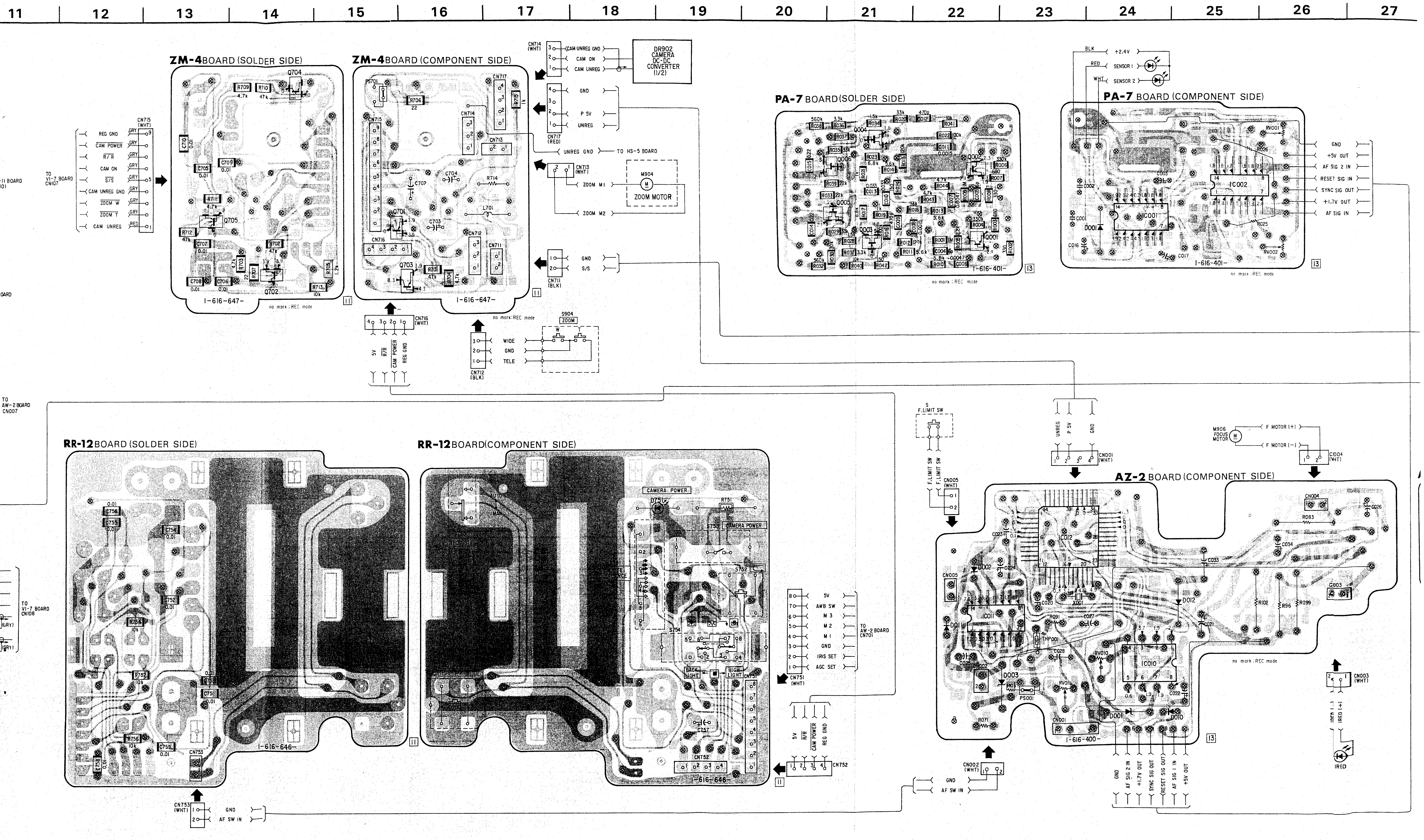
RR-12 BOARD (SOLDER SIDE)


C756 0.01
C755 0.01
C754 0.01
C752 0.01
R754 10k
R752 10k
C753 0.01
C751 0.01
R756 10k
C759 0.01
C758 0.01
CN753
1-616-646-
11
CN753 (WHT)
1 GND
2 AF SW IN

RR-12 BO

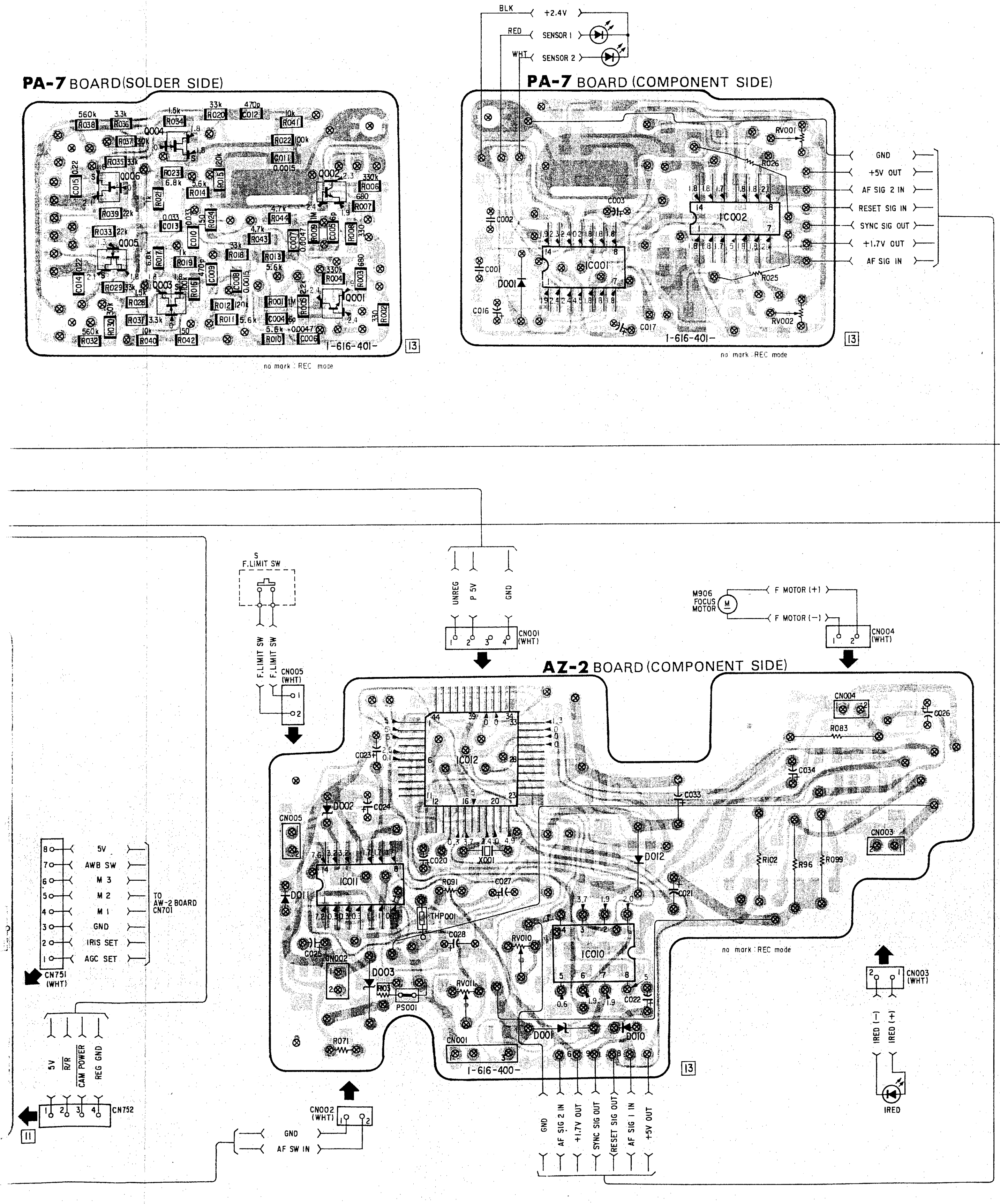

S755
FOCUS
S756
PUSH AUTO

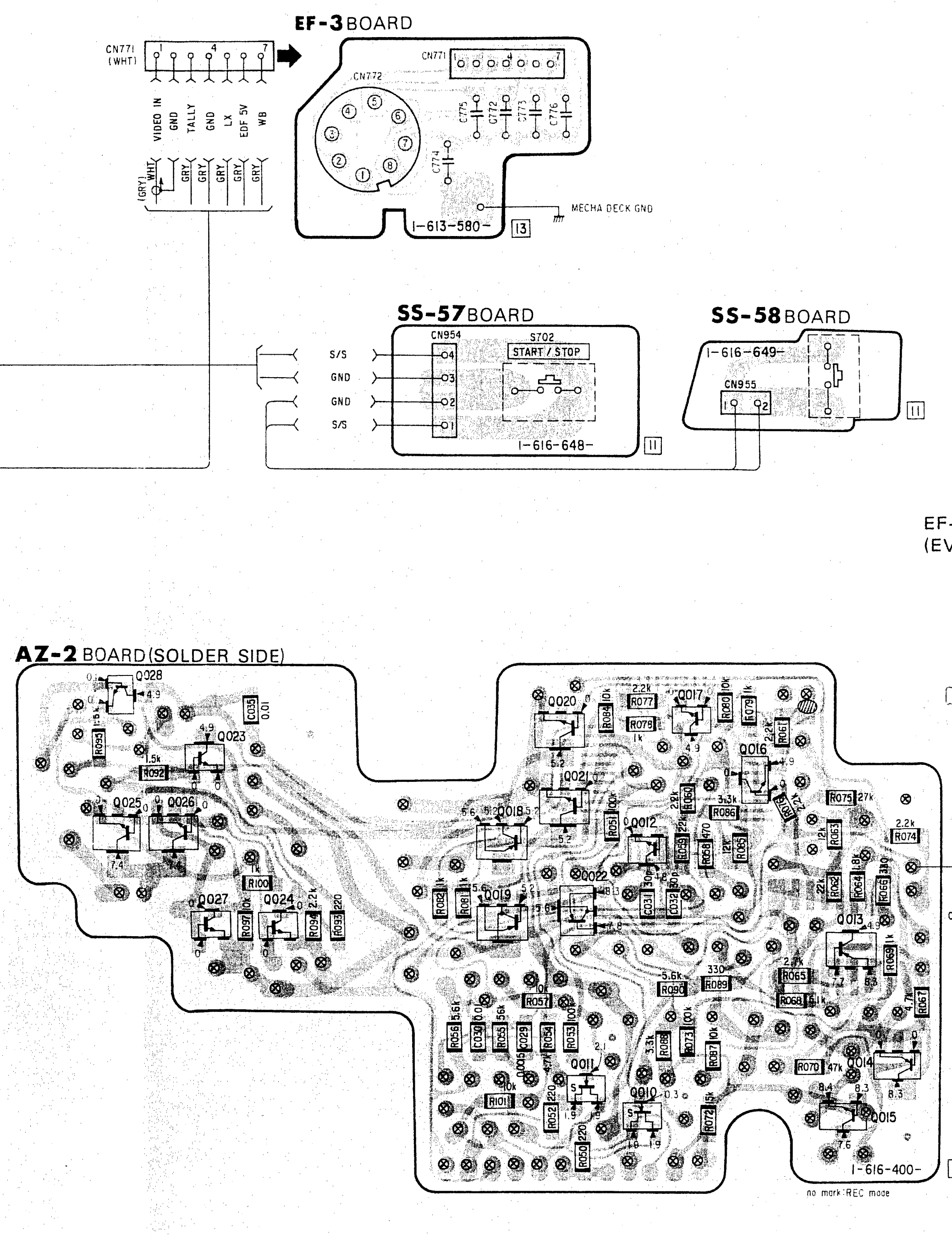
A-7 (IRED), SS-58 (SWITCH), SS-57 (SWITCH) PRINTED WIRING BOARDS

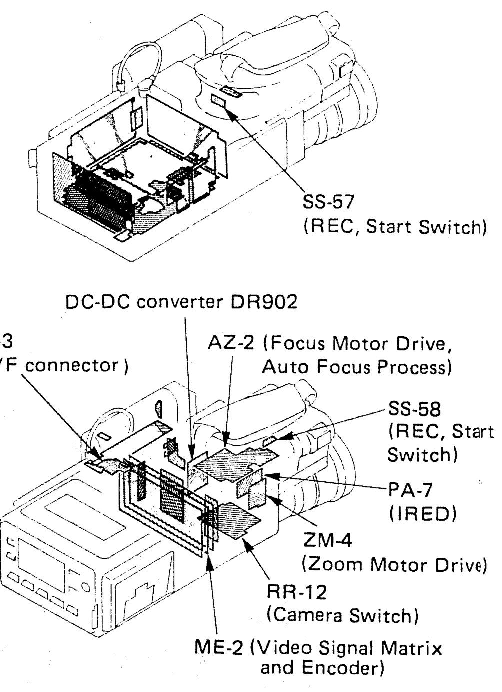

11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
ZM-4 BOARD (SOLDER SIDE)
ZM-4 BOARD (COMPONENT SIDE)
1-616-647-
no mark : REC mode
CN715 (WHT)
REG GND
CAM POWER
R/R
CAM ON
S/S
CAM UNREG GND
ZOOM W
ZOOM T
CAM UNREG
TO VI-7 BOARD CN107
CN714 (WHT)
CAM UNREG GND
CAM ON
CAM UNREG
DR902 CAMERA DC-DC CONVERTER (1/2)
GND
P 5V
UNREG
CN717 (RED)
UNREG GND
TO HS-5 BOARD
CN713 (WHT)
ZOOM M1
ZOOM M2
M904
ZOOM MOTOR
CN711 (BLK)
S/S
CN716 (WHT)
5V
R/R
CAM POWER
REG GND
S904 ZOOM
CN712 (BLK)
WIDE
TELE
PA-7 BOARD (SOLDER SIDE)
PA-7 BOARD (COMPONENT SIDE)
1-616-401-
BLK
RED
WHT
+2.4V
SENSOR 1
SENSOR 2
+5V OUT
AF SIG 2 IN
RESET SIG IN
SYNC SIG OUT
+1.7V OUT
AF SIG IN
IC001
IC002
TO AW-2 BOARD CN007
RR-12 BOARD (SOLDER SIDE)
RR-12 BOARD (COMPONENT SIDE)
1-616-646-
CAMERA POWER
S753
S754
BACK LIGHT
HIGH LIGHT
CN751 (WHT)
5V
AWB SW
M 3
M 2
M 1
IRIS SET
AGC SET
TO AW-2 BOARD CN701
CN752
CN753 (WHT)
AF SW IN
TO VI-7 BOARD CN108
S F.LIMIT SW
CN005 (WHT)
F.LIMIT SW
CN001 (WHT)
M906 FOCUS MOTOR
F MOTOR (+)
F MOTOR (−)
CN004 (WHT)
AZ-2 BOARD (COMPONENT SIDE)
IC012
IC011
IC010
1-616-400-
CN002 (WHT)
CN003 (WHT)
IRED (−)
IRED (+)
IRED

Note:

- ⊗ : Through hole.
- ▨ : pattern from the side which enables seeing.
- ▨ : B+ pattern from the side which enables seeing
- ▨ : pattern of the rear side.


PA-7 BOARD(SOLDER SIDE)
1-616-401-
no mark : REC mode
BLK +2.4V
RED SENSOR 1
WHT SENSOR 2
PA-7 BOARD (COMPONENT SIDE)
GND
+5V OUT
AF SIG 2 IN
RESET SIG IN
SYNC SIG OUT
+1.7V OUT
AF SIG IN
IC001
IC002
RV001
RV002
D001
1-616-401-
no mark : REC mode
S F.LIMIT SW
F.LIMIT SW
F.LIMIT SW
CN005 (WHT)
UNREG
P 5V
GND
CN001 (WHT)
M906 FOCUS MOTOR
F MOTOR (+)
F MOTOR (−)
CN004 (WHT)
AZ-2 BOARD (COMPONENT SIDE)
IC012
IC011
IC010
X001
THP001
PS001
RV010
RV011
D001
D002
D003
D010
D012
CN001
CN002
CN003
CN004
CN005
1-616-400-
no mark : REC mode
CN003 (WHT)
IRED (−)
IRED (+)
IRED
8 5V
7 AWB SW
6 M 3
5 M 2
4 M 1
3 GND
2 IRIS SET
1 AGC SET
TO AW-2 BOARD CN701
CN751 (WHT)
5V
R/R
CAM POWER
REG GND
CN752
CN002 (WHT)
GND
AF SW IN
GND
AF SIG 2 IN
+1.7V OUT
SYNC SIG OUT
RESET SIG IN
AF SIG 1 IN
+5V OUT


CN771 (WHT)
VIDEO IN
GND
TALLY
GND
LX
EDF 5V
WB
GRY
EF-3 BOARD
CN771
CN772
C775
C772
C773
C776
C774
1-613-580-
MECHA DECK GND
SS-57 BOARD
CN954
S702
START / STOP
S/S
GND
GND
S/S
1-616-648-
SS-58 BOARD
1-616-649-
CN955
AZ-2 BOARD(SOLDER SIDE)
Q010
Q011
Q012
Q013
Q014
Q015
Q016
Q017
Q018
Q019
Q020
Q021
Q022
Q023
Q024
Q025
Q026
Q027
Q028
D004
CHASSIS GND
1-616-400-
no mark : REC mode


SS-57
(REC, Start Switch)
DC-DC converter DR902
EF-3
(EVF connector)
AZ-2 (Focus Motor Drive, Auto Focus Process)
SS-58
(REC, Start Switch)
PA-7
(IRED)
ZM-4
(Zoom Motor Drive)
RR-12
(Camera Switch)
ME-2 (Video Signal Matrix and Encoder)

Caution:

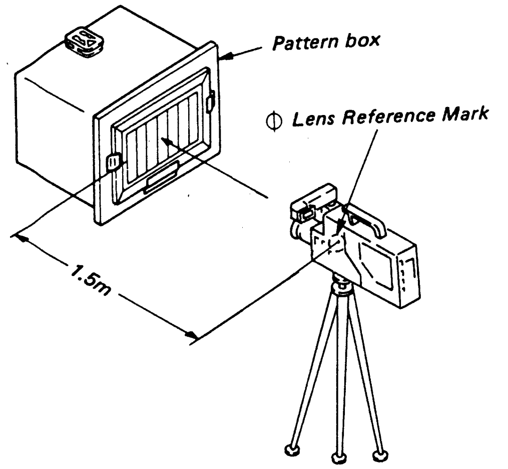
Pattern face side: (Solder Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the part face are indicated.

When indicating parts by reference number, please include the board name.

Note:

- Caution when replacing tip parts. New parts must be attached after removal of tip. Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the head.
- All resistors are in ohms, 1/10W unless otherwise noted.
- All capacitors are in µF (p:pF) unless otherwise noted. 50V or less are not indicated except for electrolytic capacitors.
- All variable and semi fixed resistors have characteristic curve B, unless otherwise noted.
- ▭ : panel designation.
- ▭ : Nonflammable resistor
- —— : B+ bus.
- ▭ : adjustment for repair.
- Voltage and waveform measuring conditions:
  - (1) Sample object: Pattern box colour bars.
  - (2) Voltage values: Relative to ground, measured with a DC digital multimeter (impedance 10M-ohm or more).

1. Connection


Pattern box
Φ Lens Reference Mark
1.5m

2. Adjust the zooming of camera and the tripod so that the output waveform of Fig. a and the picture of Fig. b can be obtain.

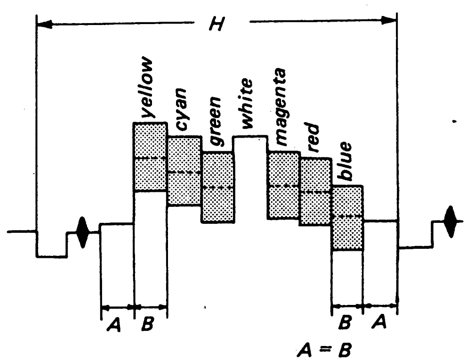

H
yellow
cyan
green
white
magenta
red
blue
A
B
B
A
A = B

Fig. a Camera output waveform of TP711 on ME-2 board

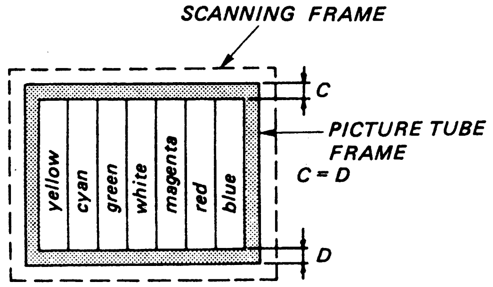

SCANNING FRAME
C
PICTURE TUBE FRAME
C = D
D
yellow
cyan
green
white
magenta
red
blue

Fig. b Picture of TV monitor screen

CAMERA (1) CAMERA (1)

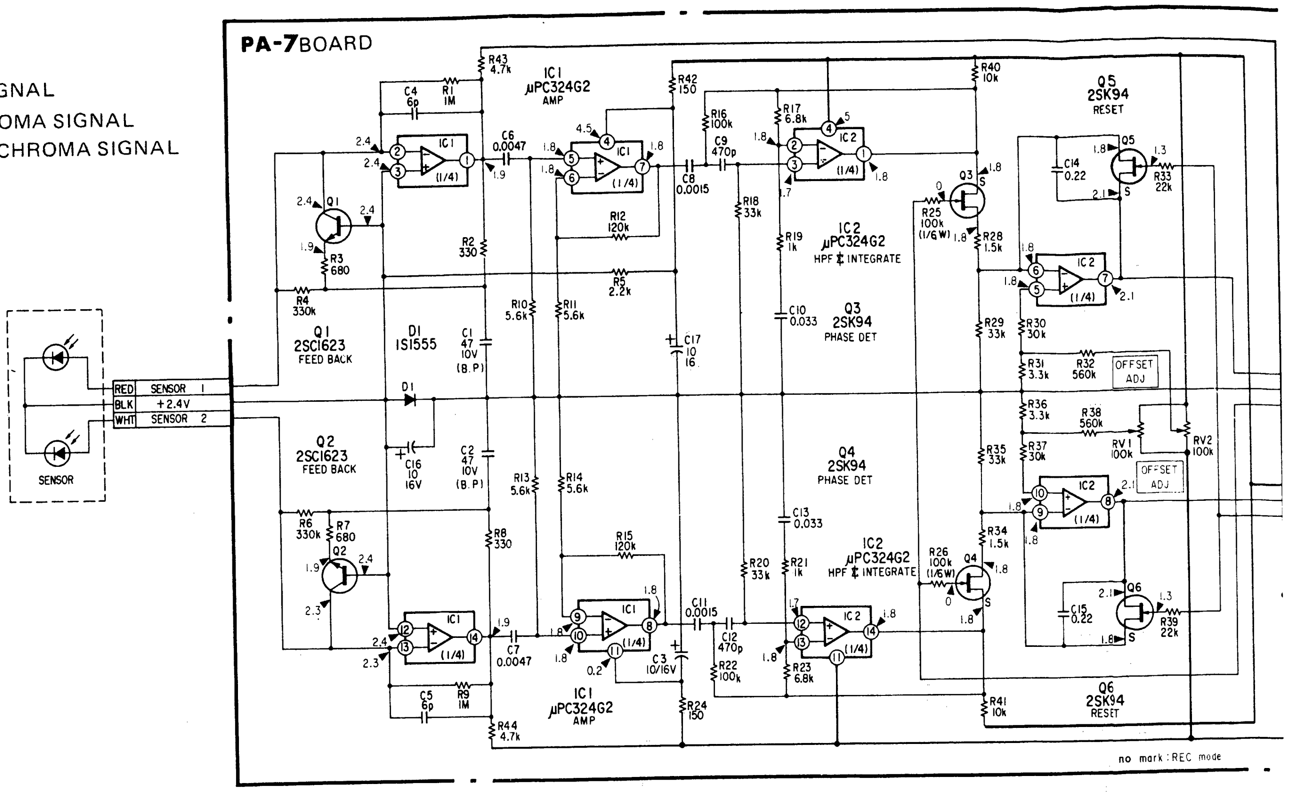
ZM-4 (ZOOM MOTOR DRIVE), RR-12 (SWITCH), ME-2 (MATRIX/ENCODER), EF-3 (EVF CONNECTOR), AZ-2 (MOTOR DRIVE, AUTO FOCUS PROCESS), PA-7 (IRED), SS-58 (SWITCH), S

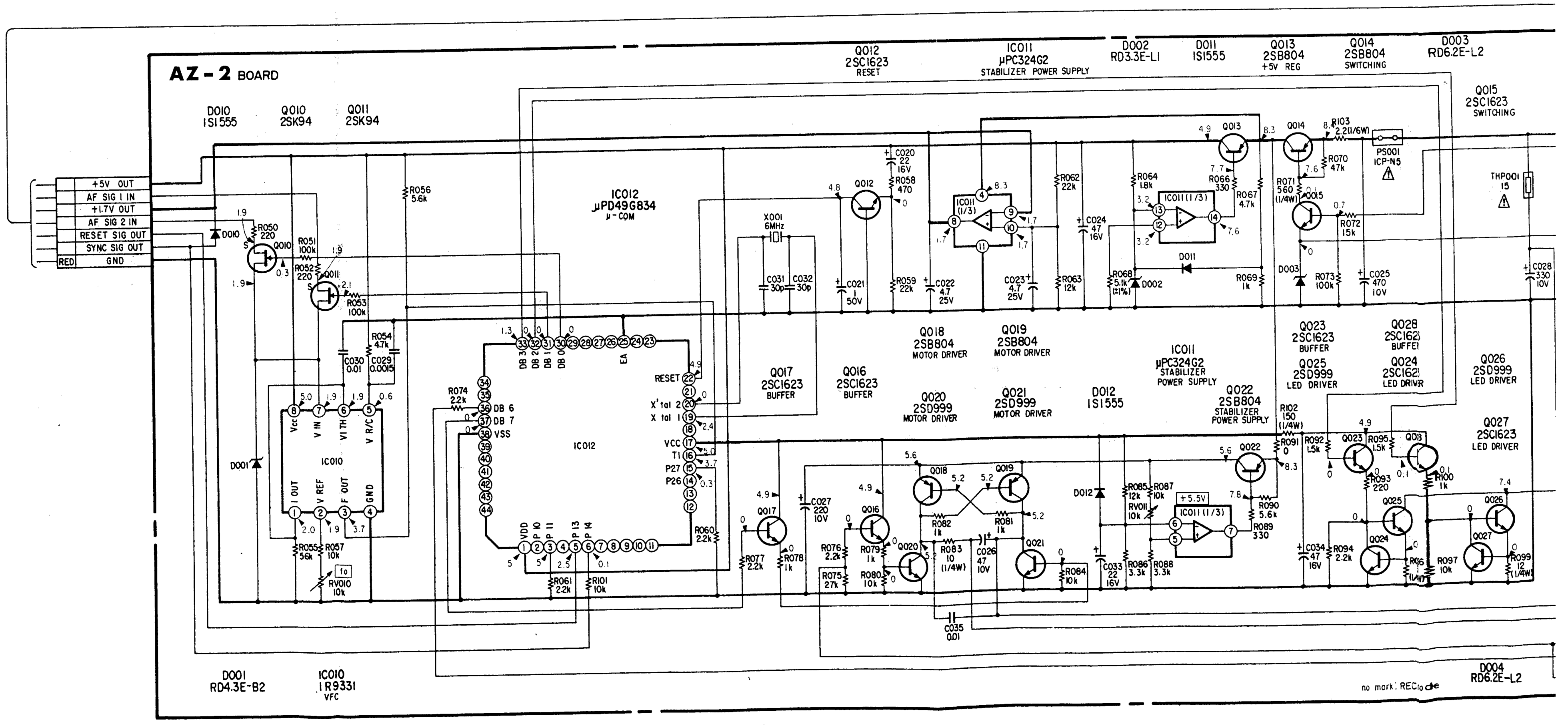
– Ref. No. AZ-2, SS-57, SS-58 BOARD : 1000 series, ME-2 BOARD : 3000 series, FE-3 BOARD : 5000 series, PA-7 BOARD : 6000 series, AM-4, RR-12 BOARD : 7000 series –

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Signal path
  - ➡ : REC Y SIGNAL
  - ➡ : REC CHROMA SIGNAL
  - ⇨ : REC Y & CHROMA SIGNAL


PA-7 BOARD
SENSOR
RED SENSOR 1
BLK +2.4V
WHT SENSOR 2
IC1 µPC324G2 AMP
IC2 µPC324G2 HPF ∮ INTEGRATE
Q1 2SC1623 FEED BACK
Q2 2SC1623 FEED BACK
D1 1S1555
Q3 2SK94 PHASE DET
Q4 2SK94 PHASE DET
Q5 2SK94 RESET
Q6 2SK94 RESET
RV1 100k OFFSET ADJ
RV2 100k OFFSET ADJ
no mark : REC mode

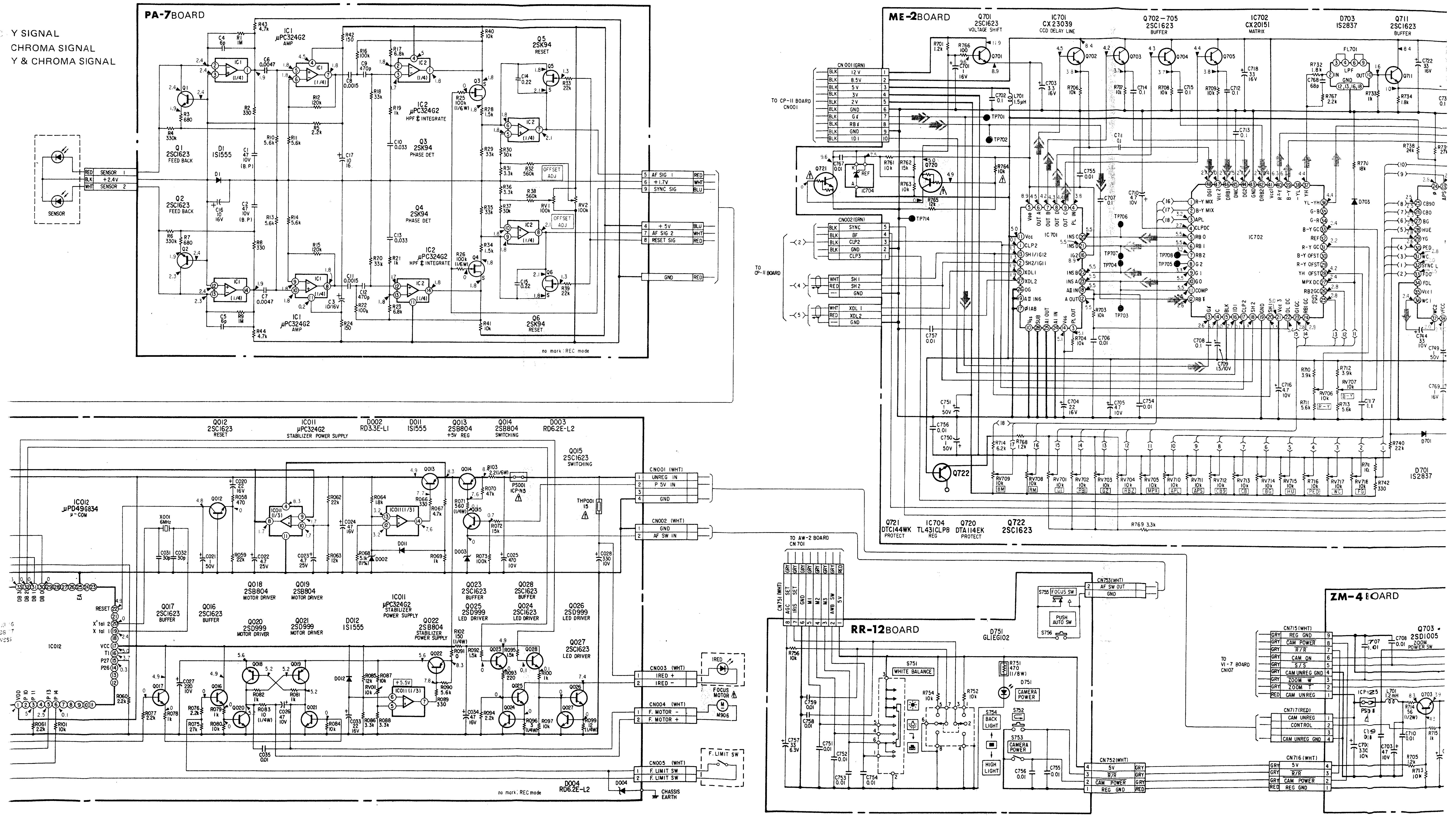

AZ-2 BOARD
D010 1S1555
Q010 2SK94
Q011 2SK94
+5V OUT
AF SIG 1 IN
+1.7V OUT
AF SIG 2 IN
RESET SIG OUT
SYNC SIG OUT
RED GND
IC012 µPD49G834 µ-COM
X001 6MHz
Q012 2SC1623 RESET
IC011 µPC324G2 STABILIZER POWER SUPPLY
D002 RD3.3E-L1
D011 1S1555
Q013 2SB804 +5V REG
Q014 2SB804 SWITCHING
D003 RD6.2E-L2
Q015 2SC1623 SWITCHING
PS001 ICP-N5 ⚠
THP001 15 ⚠
Q017 2SC1623 BUFFER
Q016 2SC1623 BUFFER
Q018 2SB804 MOTOR DRIVER
Q019 2SB804 MOTOR DRIVER
Q020 2SD999 MOTOR DRIVER
Q021 2SD999 MOTOR DRIVER
D012 1S1555
Q022 2SB804 STABILIZER POWER SUPPLY
Q023 2SC1623 BUFFER
Q025 2SD999 LED DRIVER
Q028 2SC1621 BUFFER
Q024 2SC1621 LED DRIVER
Q026 2SD999 LED DRIVER
Q027 2SC1623 LED DRIVER
D001 RD4.3E-B2
IC010 IR9331 VFC
RV010 10k
D004 RD6.2E-L2
no mark : REC mode

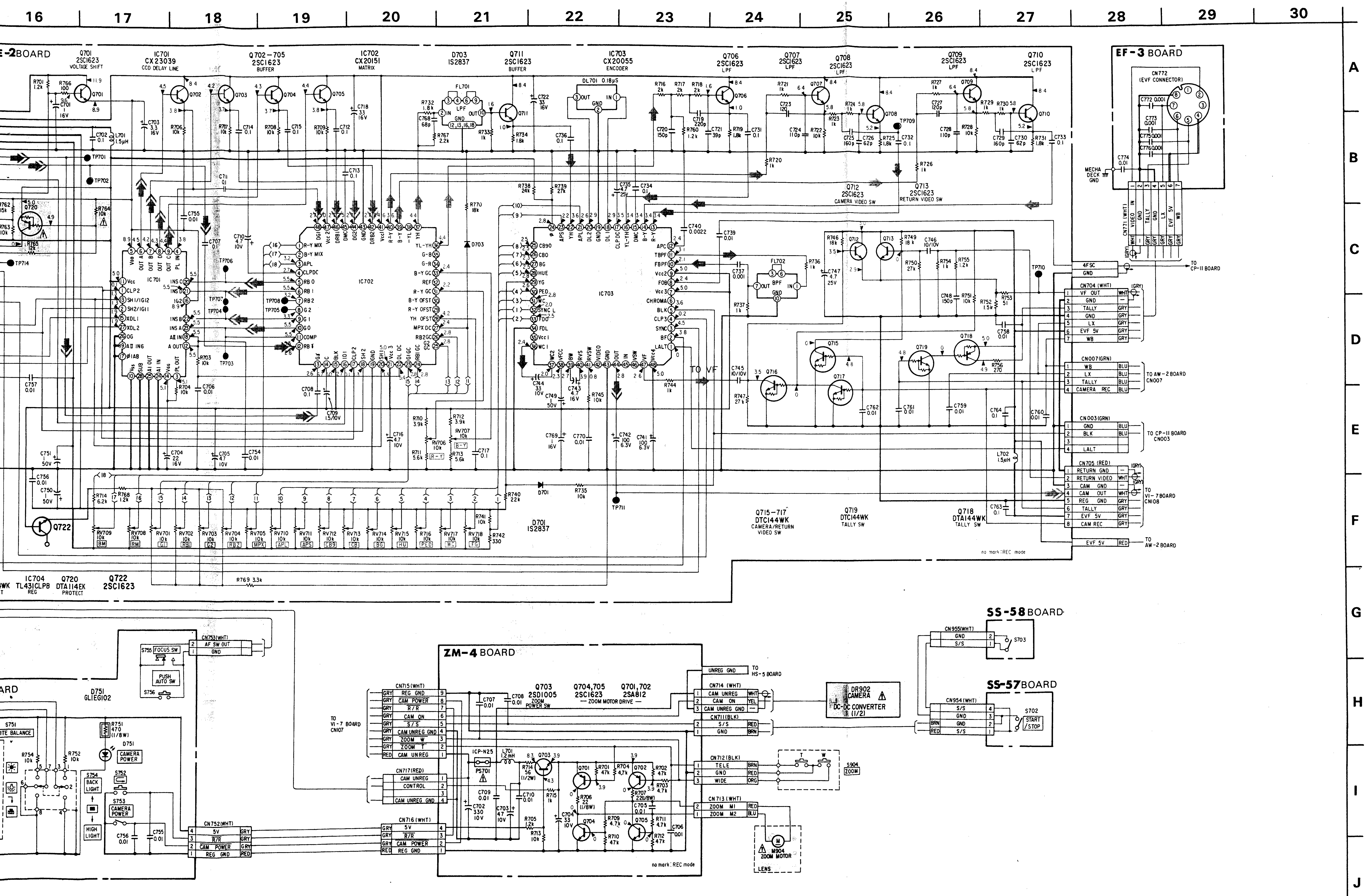
A (1)

, EF-3 (EVF CONNECTOR), AZ-2 (MOTOR DRIVE, AUTO FOCUS PROCESS), PA-7 (IRED), SS-58 (SWITCH), SS-57 (SWITCH) SCHEMATIC DIAGRAM

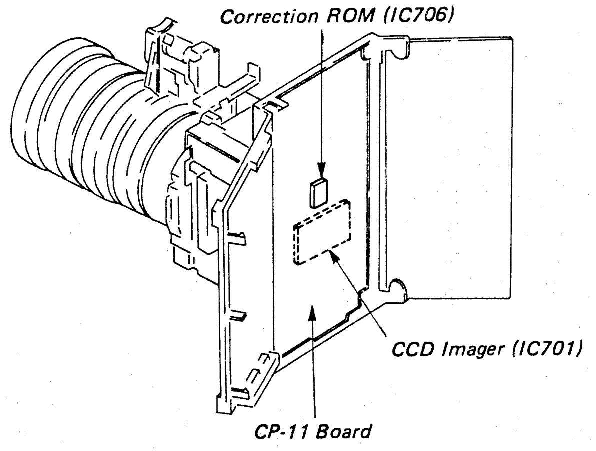
: 5000 series, PA-7 BOARD : 6000 series, AM-4, RR-12 BOARD : 7000 series –

6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21


Y SIGNAL
CHROMA SIGNAL
Y & CHROMA SIGNAL
PA-7BOARD
SENSOR
IC1 μPC324G2 AMP
IC2 μPC324G2 HPF ⇄ INTEGRATE
Q1 2SC1623 FEED BACK
Q2 2SC1623 FEED BACK
Q3 2SK94 PHASE DET
Q4 2SK94 PHASE DET
Q5 2SK94 RESET
Q6 2SK94 RESET
D1 1S1555
OFFSET ADJ
AF SIG 1
+1.7V
SYNC SIG
+5V
AF SIG 2
RESET SIG
GND
no mark : REC mode
ME-2BOARD
Q701 2SC1623 VOLTAGE SHIFT
IC701 CX23039 CCD DELAY LINE
Q702 – 705 2SC1623 BUFFER
IC702 CX20151 MATRIX
D703 1S2837
Q711 2SC1623 BUFFER
TO CP-11 BOARD CN001
CN001 (GRN)
CN002 (GRN)
TO CP-11 BOARD
Q721 DTC144WK PROTECT
IC704 TL431CLP8 REG
Q720 DTA114EK PROTECT
Q722 2SC1623
Q012 2SC1623 RESET
IC011 μPC324G2 STABILIZER POWER SUPPLY
D002 RD3.3E-L1
D011 1S1555
Q013 2SB804 +5V REG
Q014 2SB804 SWITCHING
D003 RD6.2E-L2
Q015 2SC1623 SWITCHING
IC012 μPD49G834 μ-COM
Q017 2SC1623 BUFFER
Q016 2SC1623 BUFFER
Q018 2SB804 MOTOR DRIVER
Q019 2SB804 MOTOR DRIVER
Q020 2SD999 MOTOR DRIVER
Q021 2SD999 MOTOR DRIVER
D012 1S1555
IC011 μPC324G2 STABILIZER POWER SUPPLY
Q022 2SB804 STABILIZER POWER SUPPLY
Q023 2SC1623 BUFFER
Q025 2SD999 LED DRIVER
Q028 2SC1623 BUFFER
Q024 2SC1623 LED DRIVER
Q026 2SD999 LED DRIVER
Q027 2SC1623 LED DRIVER
CN001 (WHT) UNREG IN P.5V IN GND
CN002 (WHT) GND AF SW IN
CN003 (WHT) IRED + IRED −
CN004 (WHT) F. MOTOR − F. MOTOR +
CN005 (WHT) F. LIMIT SW F. LIMIT SW
IRED
FOCUS MOTOR
F. LIMIT SW
D004 RD6.2E-L2
CHASSIS EARTH
no mark : REC mode
TO AW-2 BOARD CN701
RR-12BOARD
D751 GL1EG102
S751 WHITE BALANCE
S754 BACK LIGHT
HIGH LIGHT
S753 CAMERA POWER
S755 FOCUS SW
PUSH AUTO SW
CN753 (WHT) AF SW OUT GND
CN752 (WHT) 5V R/R CAM POWER REG GND
ZM-4BOARD
TO VI-7 BOARD CN107
CN715 (WHT)
CN717 (RED)
CN716 (WHT)
Q703 2SD1005 ZOOM POWER SW


16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
A
B
C
D
E
F
G
H
I
J
E-2 BOARD
Q701 2SC1623 VOLTAGE SHIFT
IC701 CX23039 CCD DELAY LINE
Q702-705 2SC1623 BUFFER
IC702 CX20151 MATRIX
D703 1S2837
Q711 2SC1623 BUFFER
IC703 CX20055 ENCODER
DL701 0.18µS
FL701 LPF
Q706 2SC1623 LPF
Q707 2SC1623 LPF
Q708 2SC1623 LPF
Q709 2SC1623 LPF
Q710 2SC1623 LPF
Q712 2SC1623 CAMERA VIDEO SW
Q713 2SC1623 RETURN VIDEO SW
FL702 BPF
EF-3 BOARD
CN772 (EVF CONNECTOR)
MECHA DECK GND
CN771 (WHT)
TO CP-11 BOARD
CN704 (WHT)
CN007 (GRN)
TO AW-2 BOARD CN007
CN003 (GRN)
TO CP-11 BOARD CN003
CN705 (RED)
TO VI-7 BOARD CN108
TO AW-2 BOARD
TO VF
Q715-717 DTC144WK CAMERA/RETURN VIDEO SW
Q719 DTC144WK TALLY SW
Q718 DTA144WK TALLY SW
no mark : REC mode
D701 1S2837
IC704 TL431CLPB REG
Q720 DTA114EK PROTECT
Q722 2SC1623
RV709 BM
RV708 RM
RV701 CL
RV702 RB
RV703 G2
RV704 RB2
RV705 MPX
RV710 APL
RV711 APS
RV712 CB9
RV713 CB
RV714 BG
RV715 HU
RV716 PED
RV717 WC
RV718 FG
CN753 (WHT)
AF SW OUT
GND
S755 FOCUS SW
PUSH AUTO SW
S756
D751 GL1EG102
S751 WHITE BALANCE
R751 470 (1/8W)
D751 CAMERA POWER
S754 BACK LIGHT
S752
S753 CAMERA POWER
HIGH LIGHT
CN752 (WHT)
5V
R/R
CAM POWER
REG GND
ZM-4 BOARD
Q703 2SD1005 ZOOM POWER SW
Q704,705 2SC1623 — ZOOM MOTOR DRIVE —
Q701,702 2SA812
TO VI-7 BOARD CN107
CN715 (WHT)
REG GND
CAM POWER
R/R
CAM ON
S/S
CAM UNREG GND
ZOOM W
ZOOM T
CAM UNREG
CN717 (RED)
CAM UNREG
CONTROL
CAM UNREG GND
CN716 (WHT)
5V
R/R
CAM POWER
REG GND
ICP-N25 PS701
L701 1.2mH
UNREG GND
TO HS-5 BOARD
CN714 (WHT)
CAM UNREG
CAM ON
CAM UNREG GND
CN711 (BLK)
S/S
GND
CN712 (BLK)
TELE
GND
WIDE
CN713 (WHT)
ZOOM M1
ZOOM M2
M904 ZOOM MOTOR
LENS
S904 ZOOM
DR902 CAMERA DC-DC CONVERTER (1/2)
SS-58 BOARD
CN955 (WHT)
S703
SS-57 BOARD
CN954 (WHT)
S702 START/STOP
no mark : REC mode

- **Precautions for replacement of CCD imager block**
- The CCD imager block (IC701, IC706) mounted on the CP-11 board is a pair of a CCD imager and a correction ROM* to optimize its characteristics.
  This correction ROM is manufactured to match the pair CCD imager, and the CCD imager only, or the correction ROM only, cannot be exchanged.
  * Some models which do not require any correction are not mounted with a correction ROM.
- The CCD imager supplied as a service part is divided into two types depending on the characteristics. Take the following steps after examining the service set.
  (1) A CCD imager and correction ROM are supplied together:
  Replace the CCD imager and correction ROM simultaneously. Mount the supplied correction ROM when a correction ROM is not mounted in the service set.
  (2) A CCD imager only is supplied:
  This CCD imager requires no correction. Remove any correction ROM mounted in the service set and replace the CCD imager only.
- A CCD imager block (IC701, IC706) is not mounted on the mounted CP-11 board suplied as a service part.
  Remove the CCD imager block from the previous board and remount it on the new board when repairing or exchanging the CP-11 board.
- Adjust the entire camera section when the CCD imager block is exchanged.

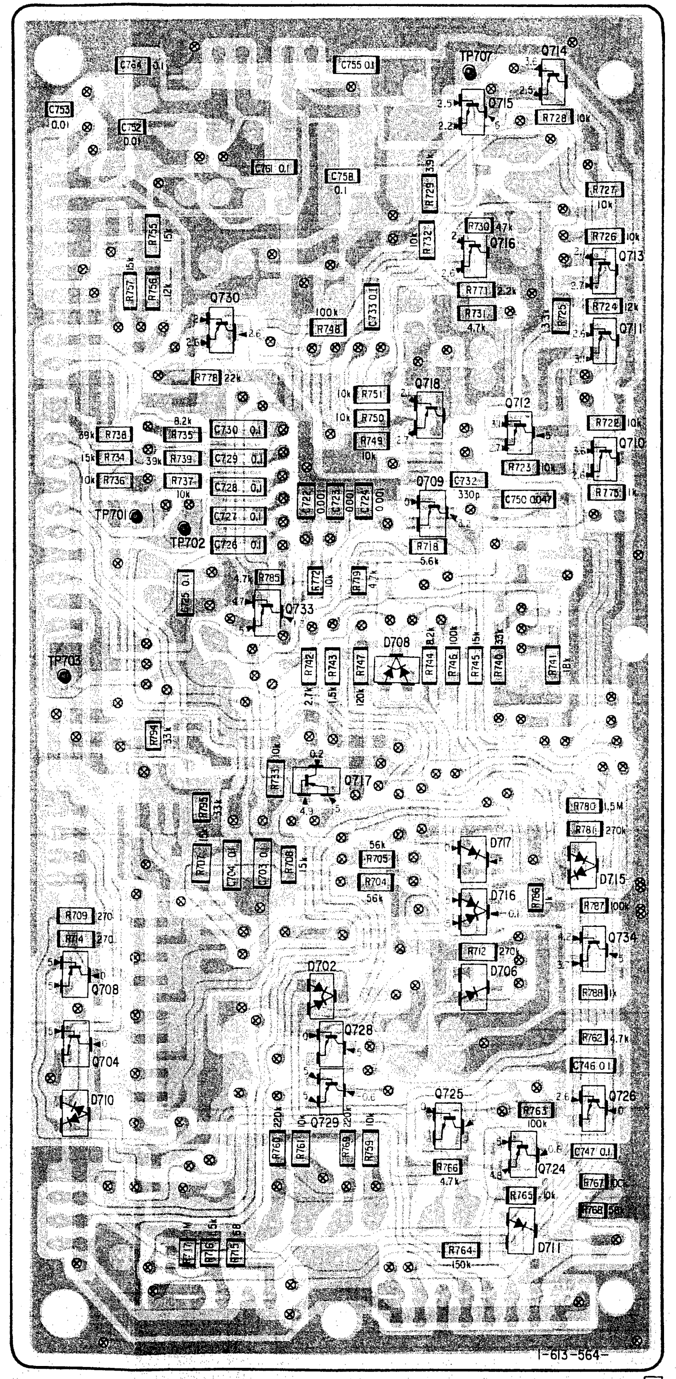


CCD Imager Block

CP-11 (CCD IMAGER, VIDEO PROCESS), OS-2 (OSC), VR-9 (VIDEO PROCESS), DR-30 (TIMING GENERATOR), AW-2 (AUTO WHITE BA

– Ref. No. CP-11, OS-2, VR-9, DR-30 BOARD : 2000 series, AW-2 BOARD : 4000 series –

AW-2BOARD (SOLDER SIDE)

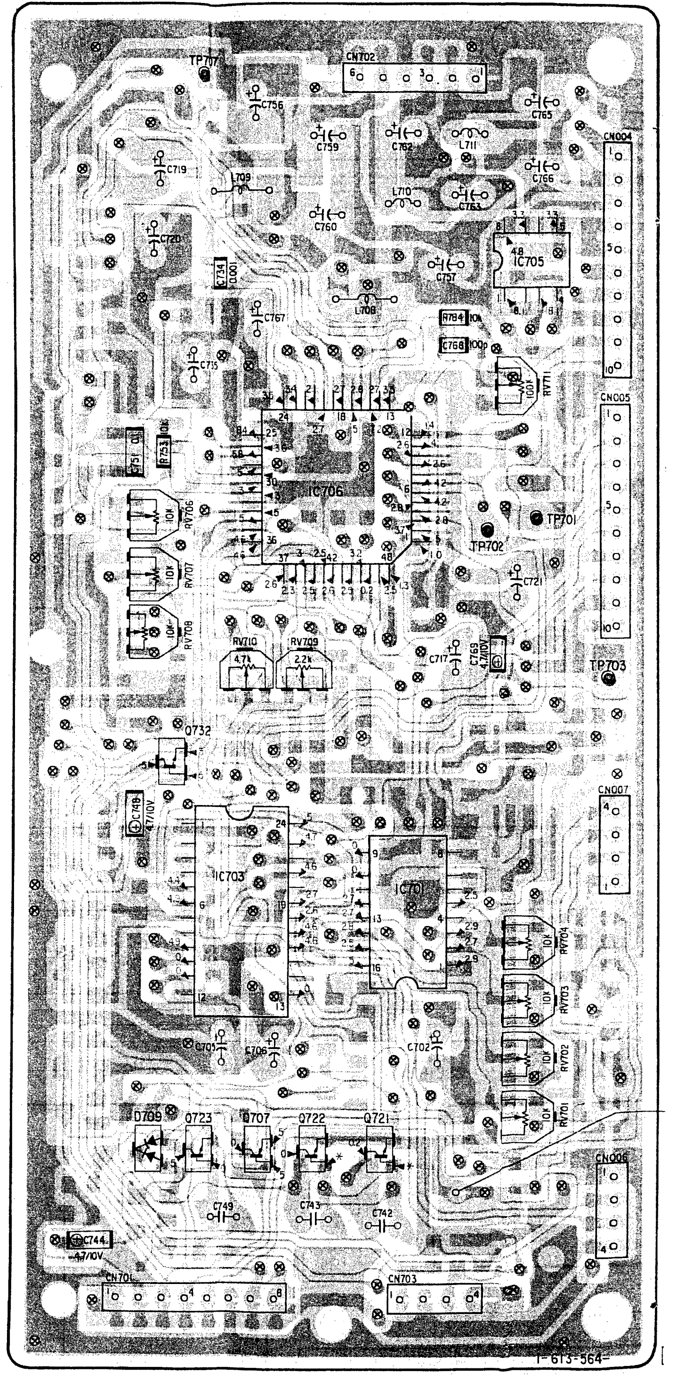


no mark : REC mode

16

Q,IC	D	ADJ	TP
			707
714			
715			
IC705 716			
713			
730			
711			
		RV711	
718			
712			
710			
IC706			
709		RV706	701
			702
		RV707	
733		RV708	
	708	RV709,RV710	703
732			
717			
	717		
	715		
IC701,IC703	716		
734		RV704	
708	706		
	702	RV703	
704 728		RV702	
729			
726	710	RV701	
725			
721,722,707,723,724	709		
	711		
Q,IC	D	ADJ	TP

AW-2BOARD (COMPONENT SIDE)



no mark : REC mode

Note:

- ⊗ : Through hole.
- ▨ : pattern from the side which enables seeing.
- ░ : B+ pattern from the side which enables seeing.
- ░ : pattern of the rear side.

Caution:

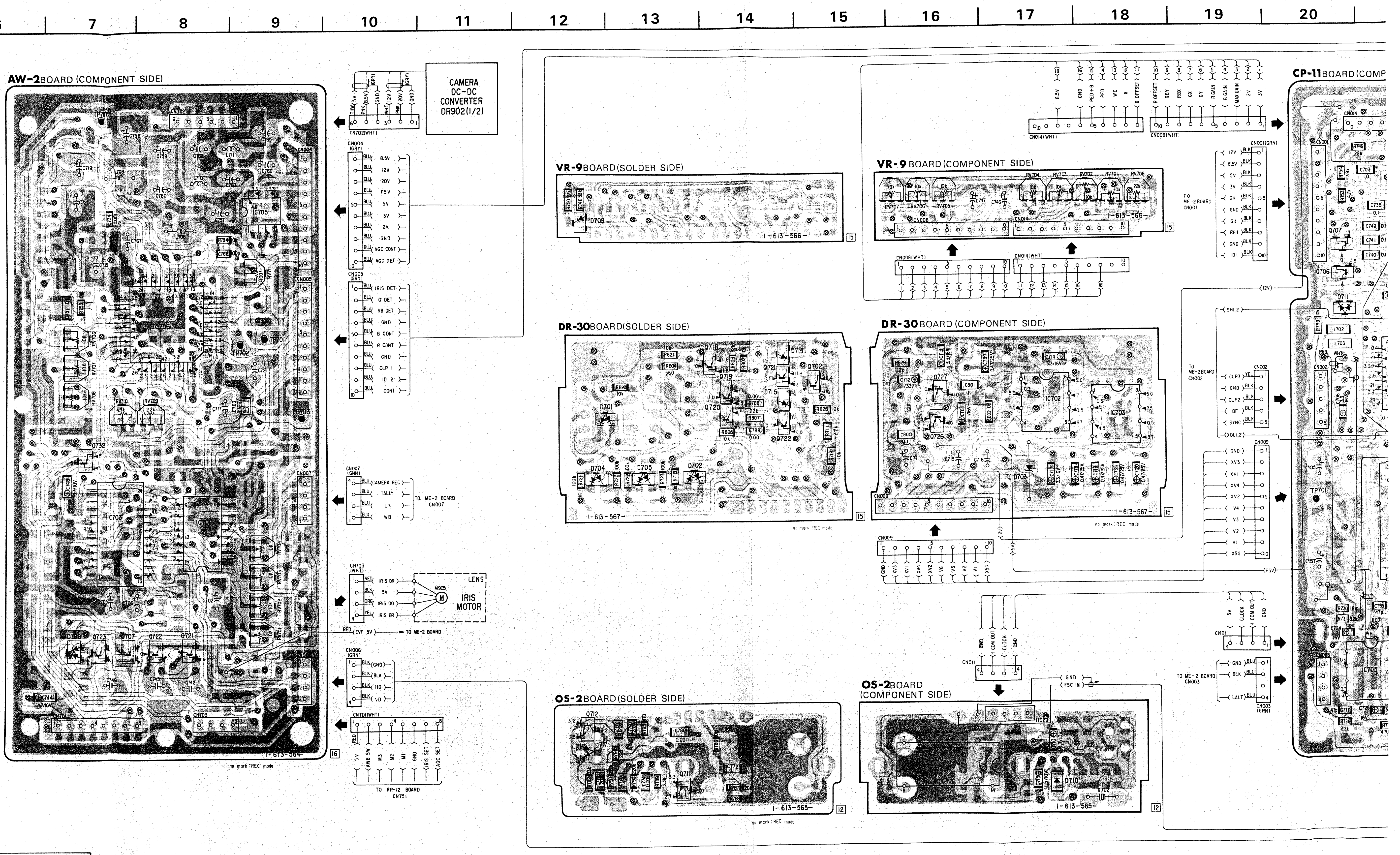
Pattern face side: (Solder Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the part face are indicated.

When indicating parts by reference number, please include the board name.

, VR-9 (VIDEO PROCESS), DR-30 (TIMING GENERATOR), AW-2 (AUTO WHITE BALANCE) SCHEMATIC DIAGRAM

BOARD : 4000 series –

Q,IC	D	ADJ	TP
			707
714			
715			
IC705 716 713			
730 711			
		RV711	
718			
712			
710			
IC706			
709		RV706	701
			702
		RV707	
733			
		RV708	
	708	RV709,RV710	703
732			
717			
	717 715		
IC701,IC703	716		
734		RV704	
708	706 702	RV703	
704 728		RV702	
729			
726 725	710	RV701	
721,722,707,723,724	709		
	711		
Q,IC	D	ADJ	TP


5
6
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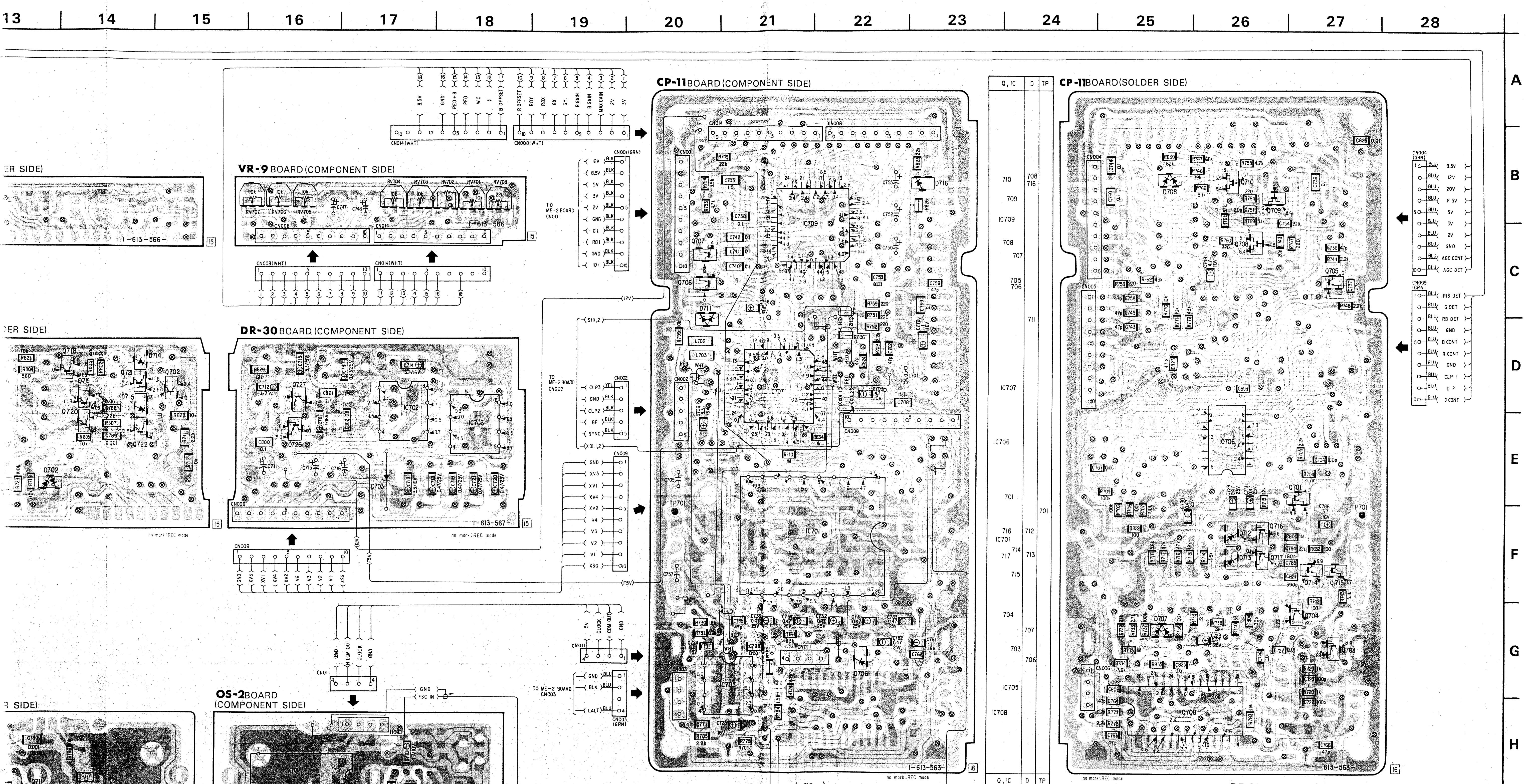
14
15
16
17
18
19
20
AW-2 BOARD (COMPONENT SIDE)
CAMERA DC-DC CONVERTER DR902(1/2)
CN702(WHT)
THW 5V
PNK 8.5V
GND
(GRY)
WHT 12V
PNK 20V
GND
CN004 (GRY)
BLU 8.5V
BLU 12V
BLU 20V
BLU F5V
BLU 5V
BLU 3V
BLU 2V
BLU GND
BLU AGC CONT
BLU AGC DET
CN005 (GRY)
BLU IRIS DET
BLU G DET
BLU RB DET
BLU GND
BLU B CONT
BLU R CONT
BLU GND
BLU CLP 1
BLU ID 2
BLU CONT
CN007 (GNN)
BLU CAMERA REC
BLU TALLY
BLU LX
BLU WB
TO ME-2 BOARD CN007
CN703 (WHT)
RED IRIS DR
BLK 5V
ORG IRIS DO
YEL IRIS BR
LENS
M905
M
IRIS MOTOR
RED EVF 5V
TO ME-2 BOARD
CN006 (GRN)
BLK GND
BLK BLK
BLK HD
BLK VD
CN701(WHT)
RED
5V
AWB SW
M3
M2
M1
GND
IRIS SET
AGC SET
TO RR-12 BOARD CN751
1-613-564-
16
no mark : REC mode
VR-9 BOARD (SOLDER SIDE)
D709
1-613-566-
15
VR-9 BOARD (COMPONENT SIDE)
RV704
RV703
RV702
RV701
RV708
RV707
RV706
RV705
C747
C746
CN008
CN014
1-613-565-
15
CN008(WHT)
CN014(WHT)
8.5V
GND
PED+B
PED
WC
B OFFSET
R OFFSET
RBY
RBX
GX
GY
R GAIN
B GAIN
MAX GAIN
2V
3V
TO ME-2 BOARD CN001
CN001(GRN)
12V
8.5V
5V
3V
2V
GND
G1
RB1
GND
ID1
BLK
12V
SH1,2
TO ME-2 BOARD CN002
CN002
YEL CLP3
BLK GND
BLK CLP2
BLK BF
BLK SYNC
XDL1,2
CN009
GND
XV3
XV1
XV4
XV2
V4
V3
V2
V1
XSG
F5V
DR-30 BOARD (SOLDER SIDE)
Q719
Q720
Q721
Q722
Q702
D701
D704
D705
D702
D714
D715
1-613-567-
15
DR-30 BOARD (COMPONENT SIDE)
Q727
Q726
IC702
IC703
D703
CN009
1-613-567-
15
no mark : REC mode
CN009
GND
XV3
XV1
XV4
XV2
V6
V3
V2
V1
XSG
12V
F5V
CN011
5V
CLOCK
H COM OUT
GND
TO ME-2 BOARD CN003
BLU GND
BLU BLK
BLU LALT
CN003 (GRN)
OS-2 BOARD (SOLDER SIDE)
Q712
Q711
1-613-565-
12
no mark : REC mode
OS-2 BOARD (COMPONENT SIDE)
GND
FSC IN
D710
X702
1-613-565-
12
CP-11 BOARD (COMP
CN014
CN001
Q707
Q706
D711
L702
L703
CN002
TP701
C705
C757
IC705

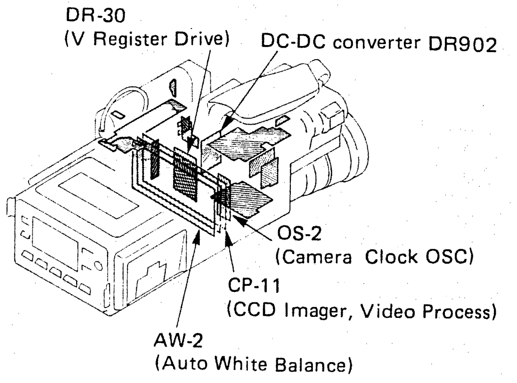
:
face side: Parts on the pattern face side seen from
Side) the pattern face are indicated.
ce side: Parts on the parts face side seen from
onent Side) the part face are indicated.

When indicating parts by reference number, please include the board name.

CAMERA (2)　CAMERA (2)


13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
A
B
C
D
E
F
G
H
VR-9 BOARD (COMPONENT SIDE)
1-613-566-
DR-30 BOARD (COMPONENT SIDE)
1-613-567-
OS-2 BOARD (COMPONENT SIDE)
1-613-565-
CP-11 BOARD (COMPONENT SIDE)
CP-11 BOARD (SOLDER SIDE)
1-613-563-
CN014 (WHT)
CN008 (WHT)
CN001 (GRN)
CN002
CN009
CN011
CN003 (GRN)
CN004 (GRN)
CN005 (GRN)
CN006 (GRN)
TO ME-2 BOARD CN001
TO ME-2 BOARD CN002
TO ME-2 BOARD CN003
TO ME-2 BOARD
8.5V
GND
PED+B
PED
WC
B
B OFFSET
R OFFSET
RBY
RBX
GX
GY
R GAIN
B GAIN
MAX GAIN
2V
3V
12V
5V
RB1
G1
ID1
SH1,2
CLP3
CLP2
BF
SYNC
XDL1,2
XV3
XV1
XV4
XV2
V4
V3
V2
V1
XSG
F5V
CLOCK
H COM OUT
FSC IN
4FSC
LALT
20V
F 5V
AGC CONT
AGC DET
IRIS DET
G DET
RB DET
B CONT
R CONT
CLP 1
ID 2
G CONT
HD
VD
BLK
BLU
TP701
IC701
IC702
IC703
IC705
IC706
IC707
IC708
IC709
no mark : REC mode
Q, IC
D
TP
710
708
716
709
IC709
708
707
705
706
711
IC707
IC706
701
701
716
IC701
712
714
717
713
715
704
707
703
706
IC705
IC708
Q, IC
D
TP

Be sure to read "Precautions for Replacement of CCD Imager Block" on page 94 when changing the mounted CP-11 Board and CCD imager block (IC701 and 706).


DR-30
(V Register Drive)
DC-DC converter DR902
OS-2
(Camera Clock OSC)
CP-11
(CCD Imager, Video Process)
AW-2
(Auto White Balance)

I
J

CP-11 (CCD IMAGER, VIDEO PROCESS), OS-2 (OSC), VR-9 (VIDEO PROCESS), DR-30 (TIMING GENERATOR), AW-2 (AUTO WHITE BALANCE) SCHEMATIC DIAGRAM

– Ref. No. CP-11, OS-2, VR-9, DR-30 BOARD : 2000 series, AW-2 BOARD : 4000 series –

Note:

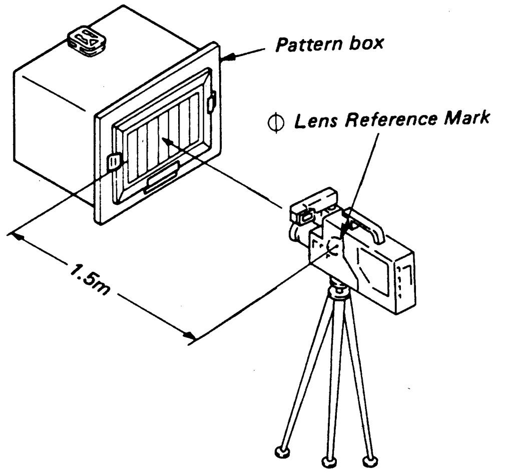
- Caution when replacing tip parts.
  New parts must be attached after removal of tip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the head.
- All resistors are in ohms, 1/10W unless otherwise noted.
- All capacitors are in μF (p:pF) unless otherwise noted.
  50V or less are not indicated except for electrolytic capacitors.
- All variable and semi fixed resistors have characteristic curve B, unless otherwise noted.
- ☐ : panel designation.
- ——— : B+ bus.
- ☐ : adjustment for repair.
- Voltage and waveform measuring conditions:
  (1) Sample object: Pattern box colour bars.
  (2) Voltage values: Relative to ground, measured with a DC digital multimeter (impedance 10M-ohm or more).

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Signal path
  ➾ : REC Y & CHROMA SIGNAL

1. Connection


Pattern box
Lens Reference Mark
1.5m

2. Adjust the zooming of camera and the tripod so that the output waveform of Fig. a and the picture of Fig. b can be obtain.

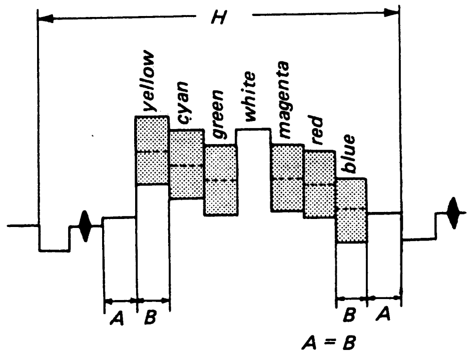

H
yellow
cyan
green
white
magenta
red
blue
A
B
B
A
A = B

Fig. a Camera output waveform of TP711 on ME-2 board

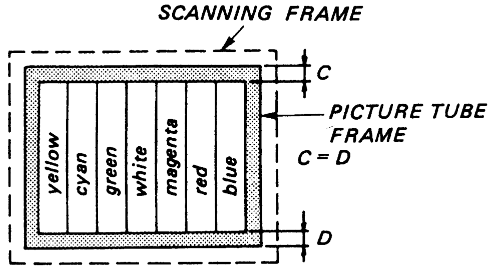
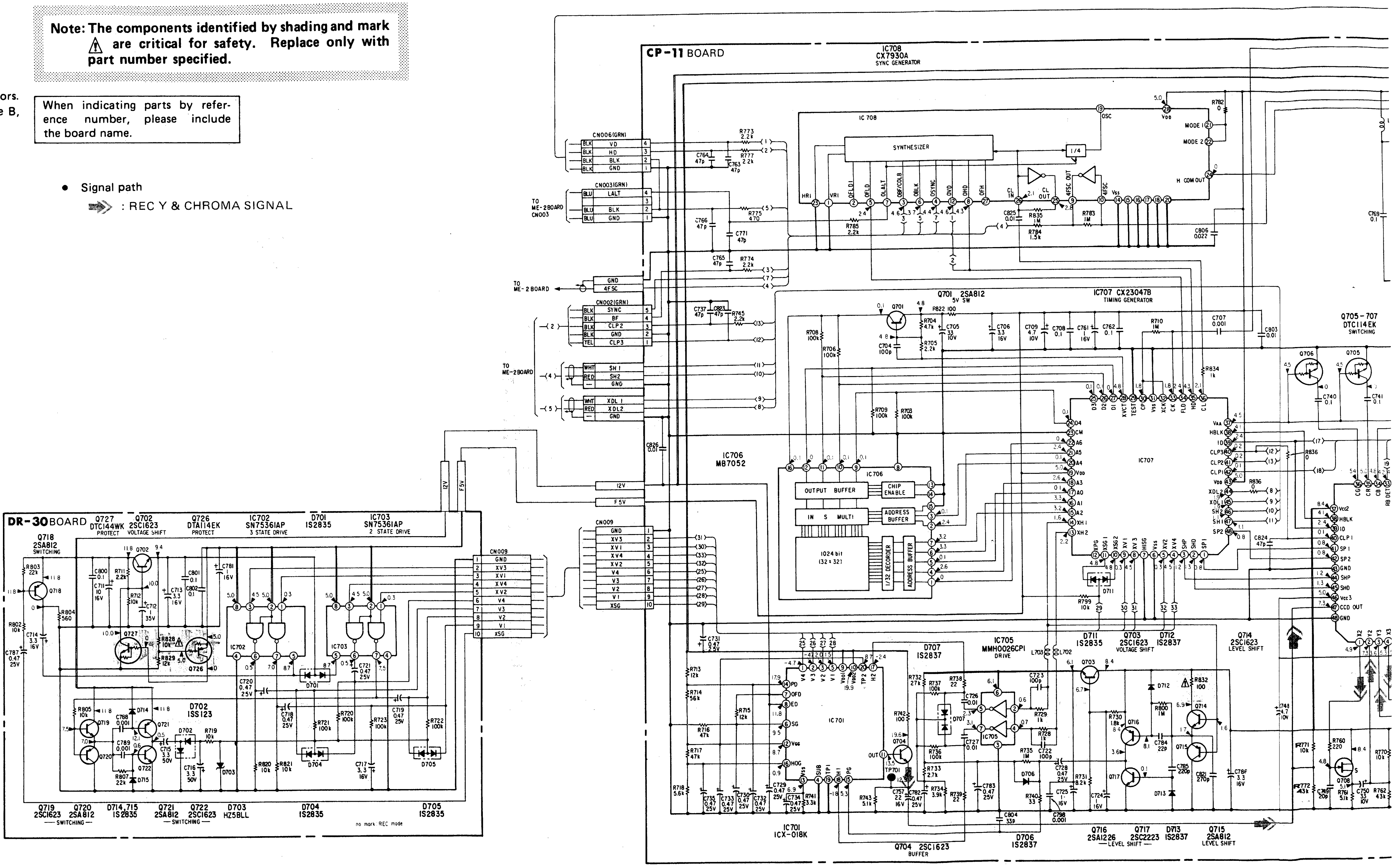
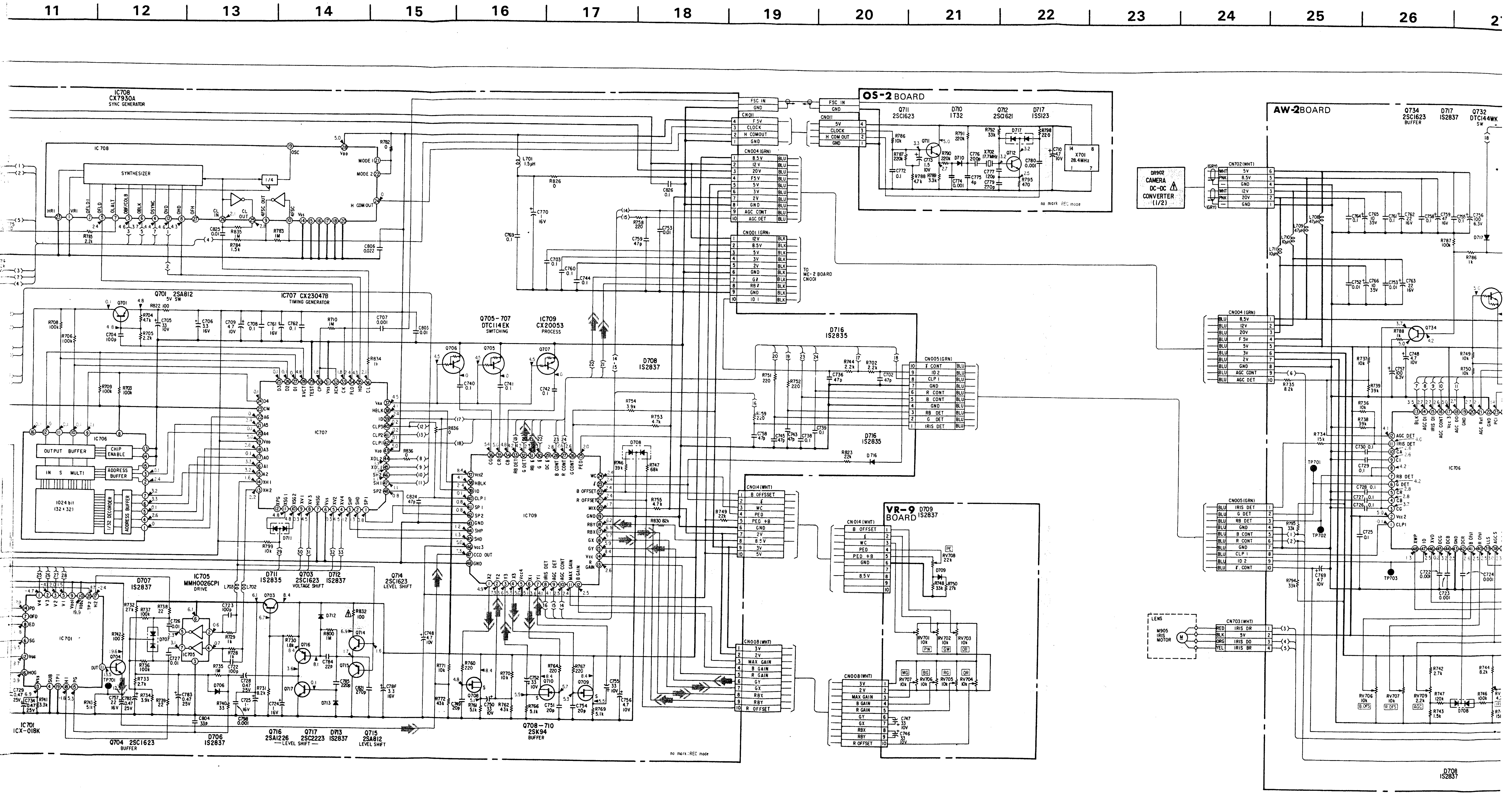

SCANNING FRAME
C
PICTURE TUBE FRAME
C = D
D
yellow
cyan
green
white
magenta
red
blue

Fig. b Picture of TV monitor screen


CP-11 BOARD
DR-30 BOARD
IC708 CX7930A SYNC GENERATOR
SYNTHESIZER
IC707 CX23047B TIMING GENERATOR
IC706 MB7052
OUTPUT BUFFER
CHIP ENABLE
ADDRESS BUFFER
IN S MULTI
1024 bit (32 × 32)
1/32 DECODER
ADDRESS BUFFER
IC701 ICX-018K
IC705 MMH0026CPI DRIVE
Q701 2SA812 5V SW
Q704 2SC1623 BUFFER
Q705-707 DTC114EK SWITCHING
D707 1S2837
D711 1S2835
Q703 2SC1623 VOLTAGE SHIFT
D712 1S2837
Q714 2SC1623 LEVEL SHIFT
Q716 2SA1226
Q717 2SC2223
D713 1S2837
Q715 2SA812 LEVEL SHIFT
D706 1S2837
TO ME-2 BOARD CN003
TO ME-2 BOARD
CN006(GRN)
CN003(GRN)
CN002(GRN)
CN009
12V
F5V
Q727 DTC144WK PROTECT
Q702 2SC1623 VOLTAGE SHIFT
Q726 DTA114EK PROTECT
IC702 SN75361AP 3 STATE DRIVE
D701 1S2835
IC703 SN75361AP 2 STATE DRIVE
Q718 2SA812 SWITCHING
D702 1SS123
Q719 2SC1623 Q720 2SA812 SWITCHING
D714,715 1S2835
Q721 2SA812 Q722 2SC1623 SWITCHING
D703 HZ5BLL
D704 1S2835
D705 1S2835
no mark : REC mode

Be sure to read "Precautions for Replacement of CCD Imager Block" on page 94 when changing the mounted CP-11 Board and CCD imager block (IC701 and 706).

C DIAGRAM


11
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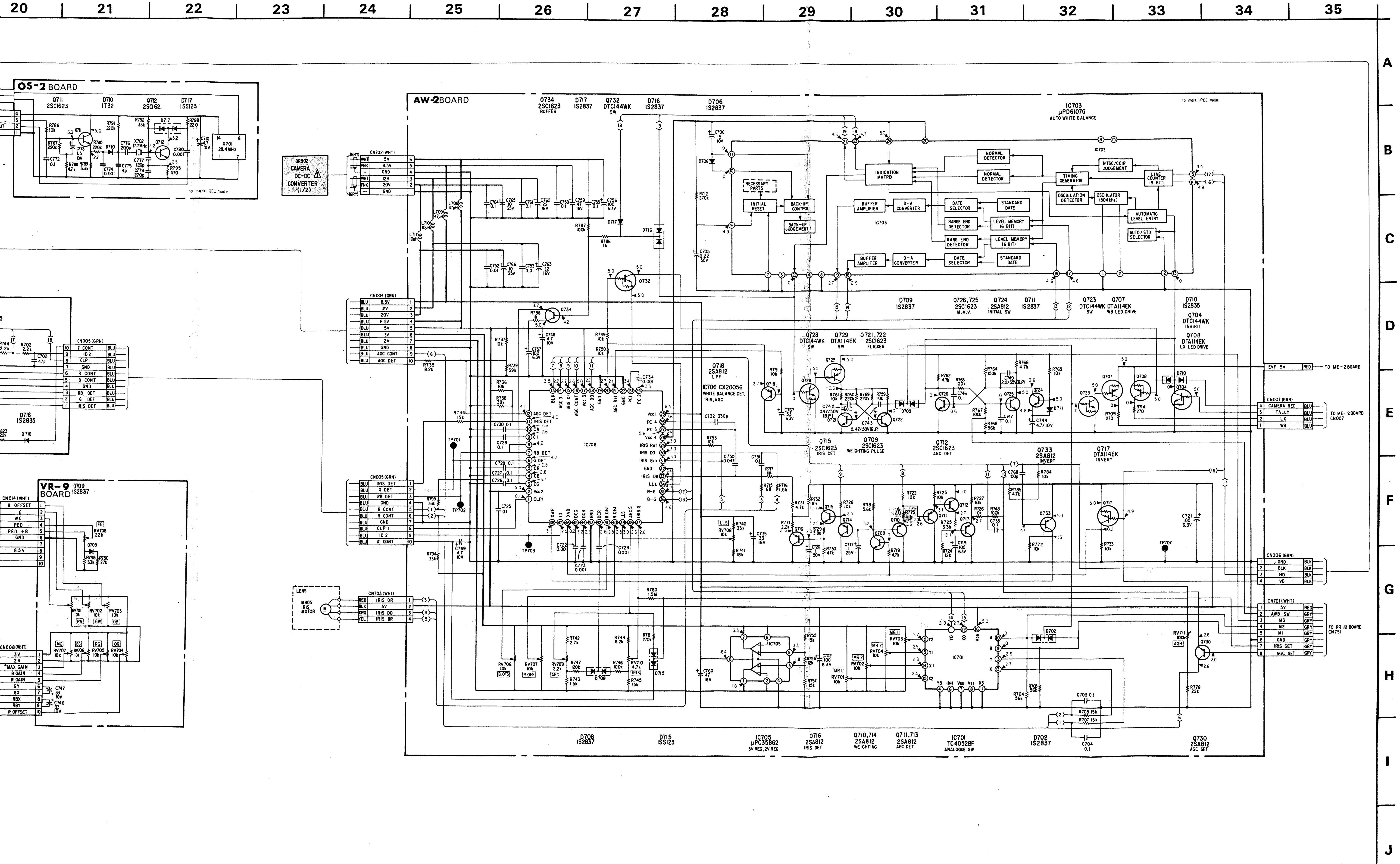
26
IC708 CX7930A SYNC GENERATOR
SYNTHESIZER
IC707 CX23047B TIMING GENERATOR
Q701 2SA812 5V SW
IC706
OUTPUT BUFFER
CHIP ENABLE
IN S MULTI
ADDRESS BUFFER
1024 bit (32×32)
1/32 DECORDER
ADDRESS BUFFER
Q705-707 DTC114EK SWITCHING
IC709 CX20053 PROCESS
D708 1S2837
D716 1S2835
IC701 ICX-018K
Q704 2SC1623 BUFFER
D707 1S2837
IC705 MMH0026CPI DRIVE
D711 1S2835
Q703 2SC1623 VOLTAGE SHIFT
D712 1S2837
Q714 2SC1623 LEVEL SHIFT
D706 1S2837
Q716 2SA1226
Q717 2SC2223
D713 1S2837
Q715 2SA812 LEVEL SHIFT
Q708-710 2SK94 BUFFER
no mark : REC mode
FSC IN
GND
CN011
F 5V
CLOCK
H COMOUT
CN004 (GRN)
CN001 (GRN)
TO ME-2 BOARD CN001
CN005 (GRN)
CN014 (WHT)
CN008 (WHT)
OS-2 BOARD
Q711 2SC1623
D710 1T32
Q712 2SC1621
D717 1SS123
X701 28.4MHz
VR-9 BOARD
D709 1S2837
DR902 CAMERA DC-DC CONVERTER ⚠ (1/2)
AW-2 BOARD
Q734 2SC1623 BUFFER
D717 1S2837
Q732 DTC144WK SW
CN702 (WHT)
CN004 (GRN)
CN005 (GRN)
CN703 (WHT)
LENS
M905 IRIS MOTOR
IC706
TP701
TP702
TP703
D708 1S2837

"Replacement of CCD Imager Block" on page 94
11 Board and CCD imager block (IC701 and 706).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31
32
33
34
35
A
B
C
D
E
F
G
H
I
J
OS-2 BOARD
Q711 2SC1623
D710 1T32
Q712 2SC1621
D717 1SS123
X701 28.4MHz
no mark : REC mode
DR902 CAMERA DC-DC CONVERTER (1/2)
CN702 (WHT)
5V
8.5V
GND
12V
20V
GND
AW-2BOARD
Q734 2SC1623 BUFFER
D717 1S2837
Q732 DTC144WK SW
D716 1S2837
D706 1S2837
IC703 μPD6107G AUTO WHITE BALANCE
no mark : REC mode
INDICATION MATRIX
NORMAL DETECTOR
NORMAL DETECTOR
TIMING GENERATOR
NTSC/CCIR JUDGEMENT
LINE COUNTER (9 BIT)
OSCILLATION DETECTOR
OSCILLATOR (504kHz)
AUTOMATIC LEVEL ENTRY
AUTO/STD SELECTOR
NECESSARY PARTS
INITIAL RESET
BACK-UP CONTROL
BACK-UP JUDGEMENT
BUFFER AMPLIFIER
D-A CONVERTER
DATE SELECTOR
STANDARD DATE
RANGE END DETECTOR
LEVEL MEMORY (6 BIT)
RANG END DETECTOR
LEVEL MEMORY (6 BIT)
BUFFER AMPLIFIER
D-A CONVERTER
DATE SELECTOR
STANDARD DATE
IC703
CN004 (GRN)
8.5V
12V
20V
F 5V
5V
3V
2V
GND
AGC CONT
AGC DET
CN005 (GRN)
F CONT
ID 2
CLP 1
GND
R CONT
B CONT
GND
RB DET
G DET
IRIS DET
D716 1S2835
IC706 CX20056 WHITE BALANCE DET, IRIS, AGC
Q718 2SA812 LPF
IC706
TP701
TP702
TP703
TP707
D709 1S2837
Q726,725 2SC1623 M.M.V.
Q724 2SA812 INITIAL SW
D711 1S2837
Q723 DTC144WK SW
Q707 DTA114EK WB LED DRIVE
D710 1S2835
Q704 DTC144WK INHIBIT
Q708 DTA114EK LX LED DRIVE
Q728 DTC144WK SW
Q729 DTA114EK SW
Q721,722 2SC1623 FLICKER
Q715 2SC1623 IRIS DET
Q709 2SC1623 WEIGHTING PULSE
Q712 2SC1623 AGC DET
Q733 2SA812 INVERT
Q717 DTA114EK INVERT
EVF 5V
TO ME-2 BOARD
CN007 (GRN)
CAMERA REC
TALLY
LX
WB
TO ME-2 BOARD CN007
CN006 (GRN)
GND
BLK
HD
VD
CN701 (WHT)
5V
AWB SW
M3
M2
M1
GND
IRIS SET
AGC SET
TO RR-12 BOARD CN751
VR-9 BOARD
D709 1S2837
CN014 (WHT)
B OFFSET
WC
PED
PED +B
GND
8.5V
RV701
RV702
RV703
CN008 (WHT)
3V
2V
MAX GAIN
B GAIN
R GAIN
GY
GX
RBX
RBY
R OFFSET
RV707
RV706
RV705
RV704
LENS
M905 IRIS MOTOR
CN703 (WHT)
IRIS DR
5V
IRIS DO
IRIS BR
IC705
IC701
RV711 AGH
Q730
D708 1S2837
D715 1SS123
IC705 μPC358G2 3V REG, 2V REG
Q716 2SA812 IRIS DET
Q710,714 2SA812 WEIGHTING
Q711,713 2SA812 AGC DET
IC701 TC4052BF ANALOGUE SW
D702 1S2837
Q730 2SA812 AGC SET

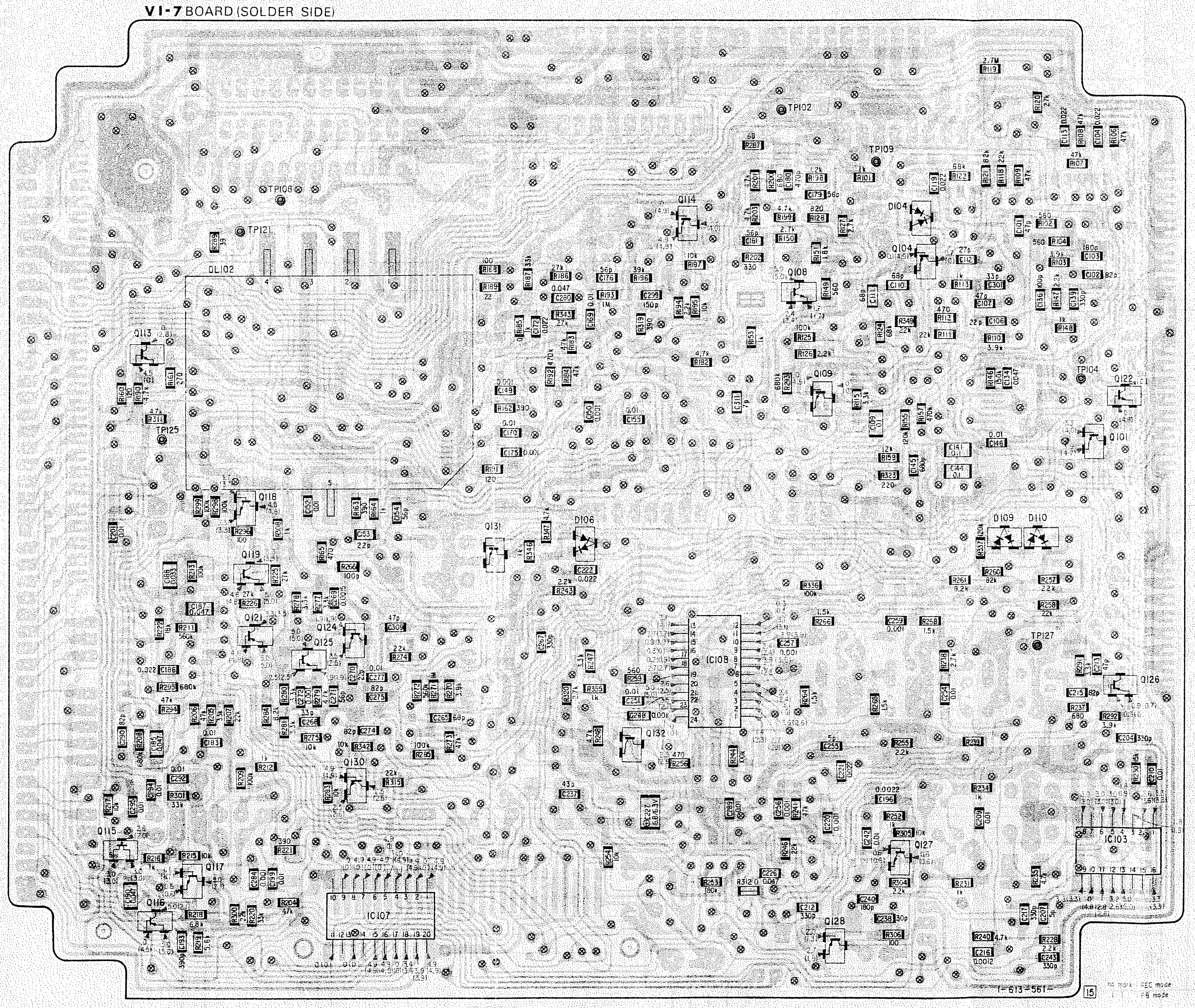
"

VI-7 (Y & CHROMA SIGNAL PROCESS, PB PROCESS), FU-34 (FUSE), HS-5 (TAPE SENSOR, SWITCH), FE-4 (FLYING ERASE), EX-3 (TUNING EXPANDER, EQ, ED SWITCH), TK-2 (SWITCH) PRINTED WIRING BOARDS

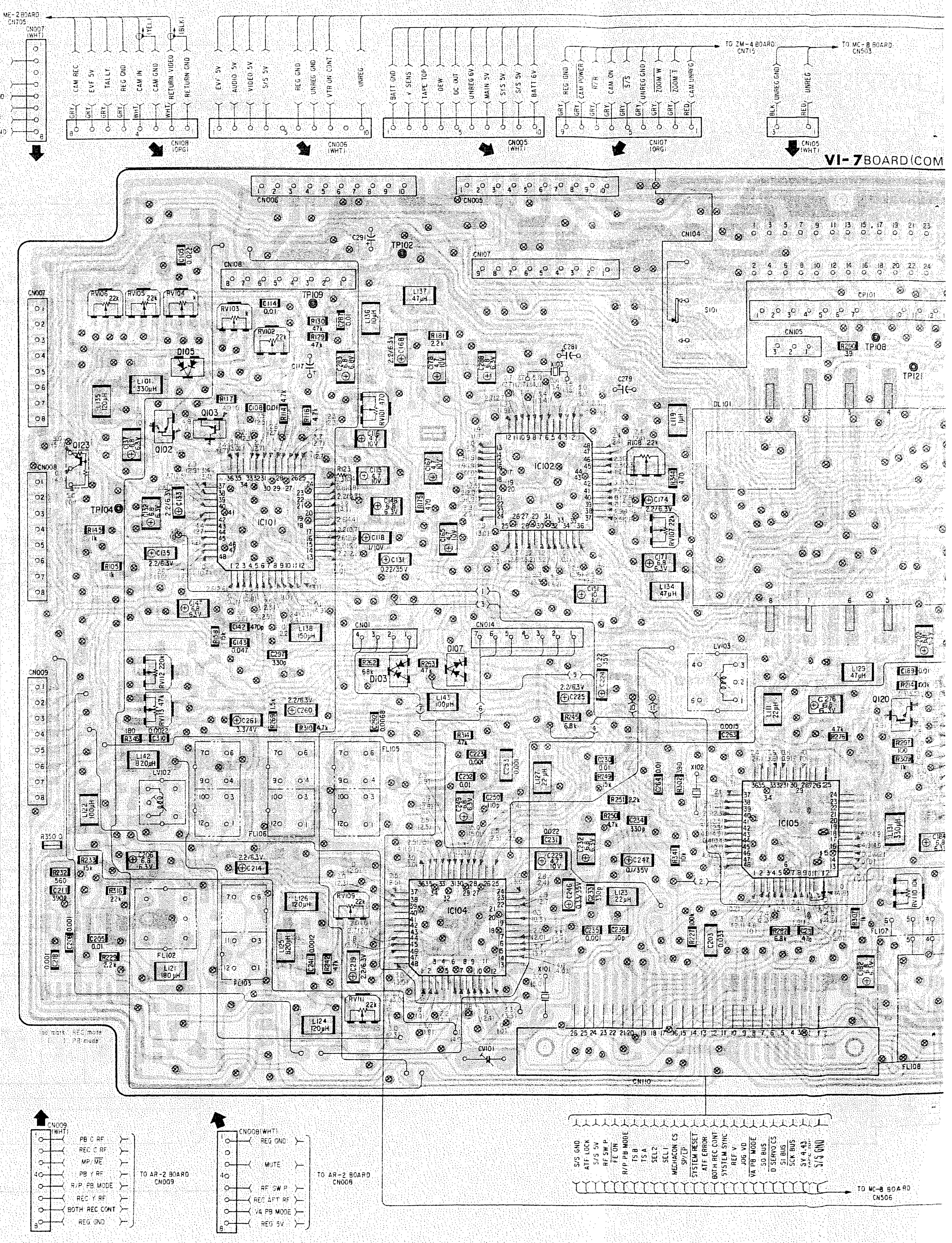
– Ref. No. FU-34 BOARD : 5000 series, HS-5 BOARD : 6000 series, VI-7, EX-3, TK-2 BOARD : 7000 series, FE-4 BOARD : 8000 series –

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

A B C D E F G H I J


VI-7 BOARD (SOLDER SIDE)
TP102
TP108
TP109
TP121
TP125
TP104
TP127
DL102
Q101
Q104
Q108
Q109
Q113
Q114
Q115
Q116
Q117
Q118
Q119
Q121
Q122
Q124
Q125
Q126
Q127
Q128
Q130
Q131
Q132
D104
D106
D109
D110
IC103
IC107
IC108
1-613-561-
15
no mark : REC mode
( ) : PB mode

Q, IC	D	ADJ	TP
			102
			109
		RVI04	
		RVI03, RVI05	108
114	104	RVI06	121
		RVI02	
	105		
104			
108		RVI01	
103, 102			
123			
113			
109, 122		RVI08	
101			
IC102			
IC101		RVI07	104
			125
118	110		
	109		
	106		
	107	RVI12	
	103	LVI03	
119		RVI13	
120			
IC106			127
121, 124			
125			
IC108			
126			
		LVI02	
IC105			
		RVI10	
		RVI09	
130			
IC104			
115			
117, 127			
116			
IC103			
IC107		RVI11	
128			
		CVI01	
Q, IC	D	ADJ	TP


TO AR-2 BOARD CN007
CN007 (WHT)
AUDIO 5V
LINE OUT
LINE IN GND
LINE IN
CAM/LINE
AUDIO 5V GND
TO ME-2 BOARD CN705
CAM REC
EVF 5V
TALLY
REG GND
CAM IN
CAM GND
RETURN VIDEO
RETURN GND
(YEL)
(BLK)
GRY
WHT
CN108 (ORG)
EVF 5V
AUDIO 5V
VIDEO 5V
S/S 5V
REG GND
UNREG GND
VTR ON CONT
UNREG
CN006 (WHT)
BATT GND
V SENS
TAPE TOP
DEW
DC OUT
UNREG 6V
MAIN 5V
SYS 5V
S/S 5V
BATT 6V
CN005 (WHT)
TO ZM-4 BOARD CN715
REG GND
CAM POWER
R/R
CAM ON
S/S
UNREG GND
ZOOM W
ZOOM T
CAM UNREG
RED
CN107 (ORG)
TO MC-B BOARD CN503
UNREG GND
UNREG
BLK
CN105 (WHT)
VI-7 BOARD (COM
CN006
CN005
CN104
CN101
CN105
CN107
CN108
CN014
CN110
TP102
TP104
TP108
TP109
TP121
Q102
Q103
Q120
Q123
D103
D105
D107
IC101
IC102
IC104
IC105
DL101
FL102
FL105
FL106
FL108
CN009 (WHT)
PB C RF
REC C RF
MP/ME
PB Y RF
R/P PB MODE
REC Y RF
BOTH REC CONT
REG GND
TO AR-2 BOARD CN009
CN008 (WHT)
REG GND
MUTE
RF SW P
REC AFT RF
VA PB MODE
REG 5V
TO AR-2 BOARD CN008
S/S GND
ATF LOCK
S/S 5V
RF SW P
FE ON
R/P PB MODE
TS B
TS A
SEL 2
SEL 1
MECHACON CS
SP/LP
SYSTEM RESET
ATF ERROR
BOTH REC CONT
SYSTEM SYNC
REF V
JOG VD
VA PB MODE
SO BUS
D SERVO CS
SI BUS
SCK BUS
SY 4.43
S/S GND
TO MC-B BOARD CN506

Note:

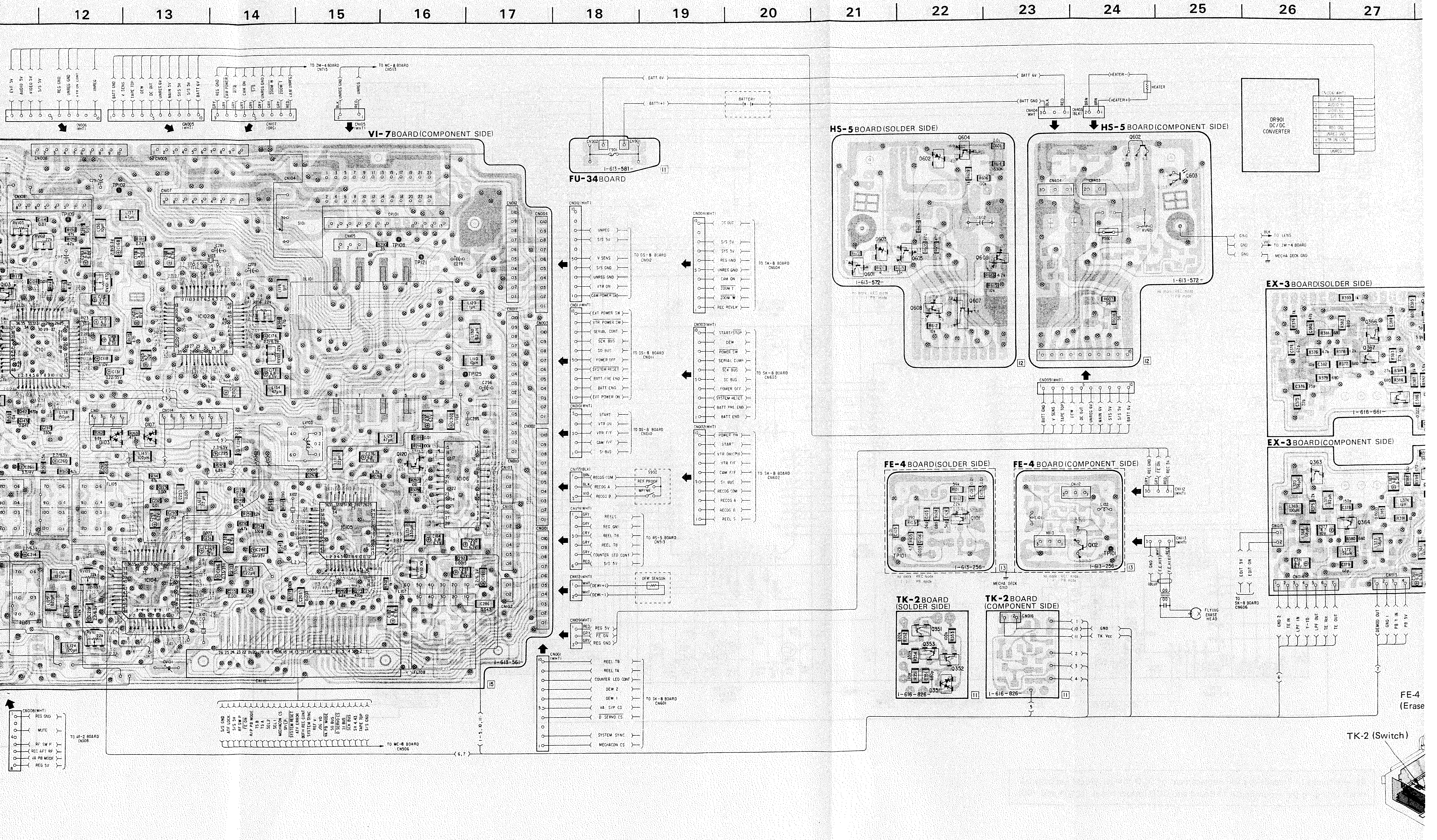
- ● ⊗ : Through hole.
- ● ▨ : pattern from the side which enables seeing.
- ● ▨ : B+ pattern from the side which enables seeing.
- ● ▨ : pattern of the rear side.

Caution:

Pattern face side: (Solder Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the part face are indicated.

When indicating parts by reference number, please include the board name.

, ED SWITCH), TK-2 (SWITCH) PRINTED WIRING BOARDS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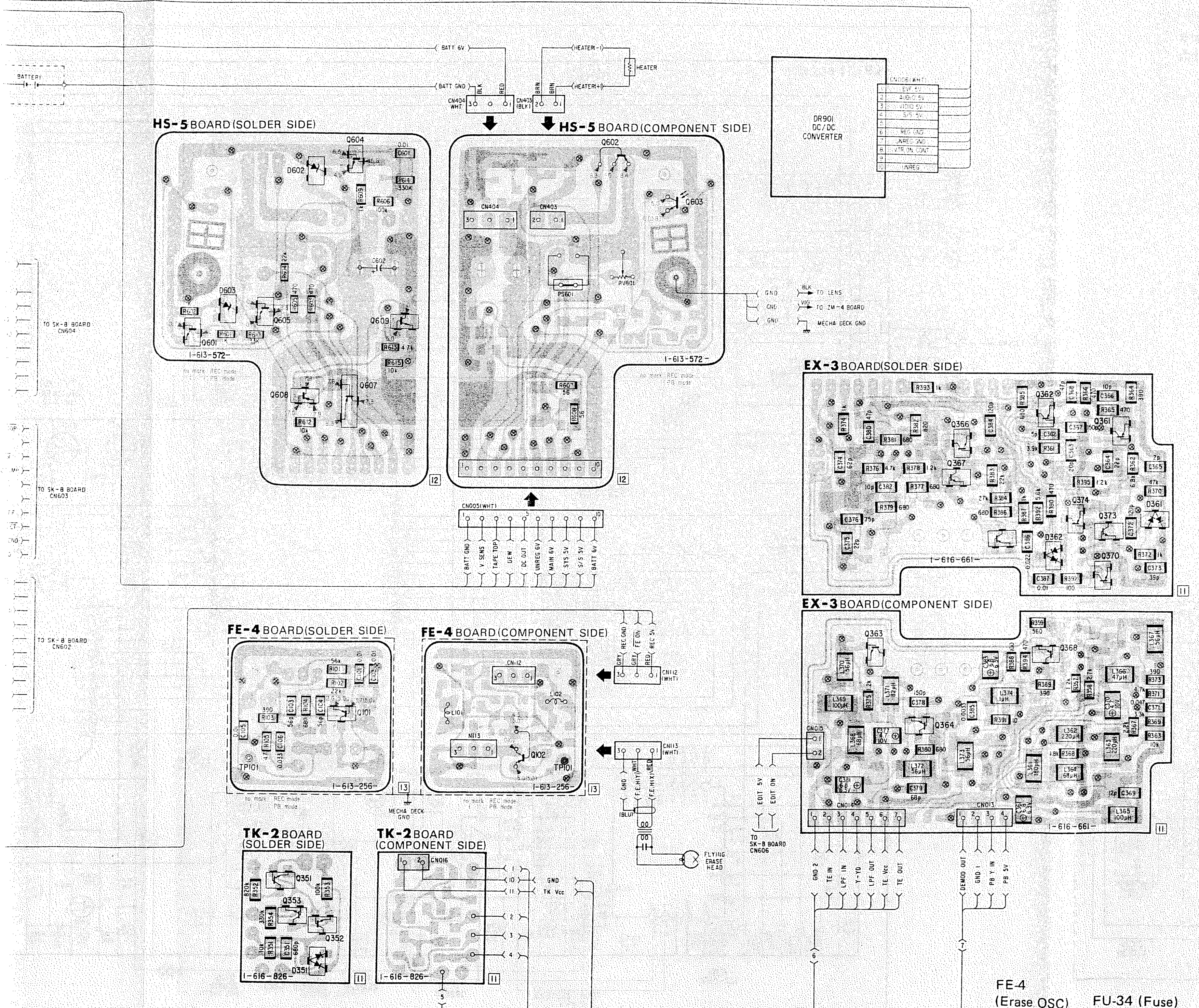
27
VI-7 BOARD (COMPONENT SIDE)
FU-34 BOARD
HS-5 BOARD (SOLDER SIDE)
HS-5 BOARD (COMPONENT SIDE)
DR901 DC/DC CONVERTER
EX-3 BOARD (SOLDER SIDE)
EX-3 BOARD (COMPONENT SIDE)
FE-4 BOARD (SOLDER SIDE)
FE-4 BOARD (COMPONENT SIDE)
TK-2 BOARD (SOLDER SIDE)
TK-2 BOARD (COMPONENT SIDE)
FE-4 (Erase
TK-2 (Switch)
FLYING ERASE HEAD
BATTERY
HEATER
TO MC-8 BOARD CN506
TO SK-8 BOARD CN601
TO SK-8 BOARD CN602
TO SK-8 BOARD CN603
TO SK-8 BOARD CN604
TO DS-8 BOARD CN010
TO DS-8 BOARD CN011
TO DS-8 BOARD CN012
TO RS-5 BOARD CN513
1-613-561
1-613-581
1-613-572
1-613-256
1-616-826
1-616-661


20
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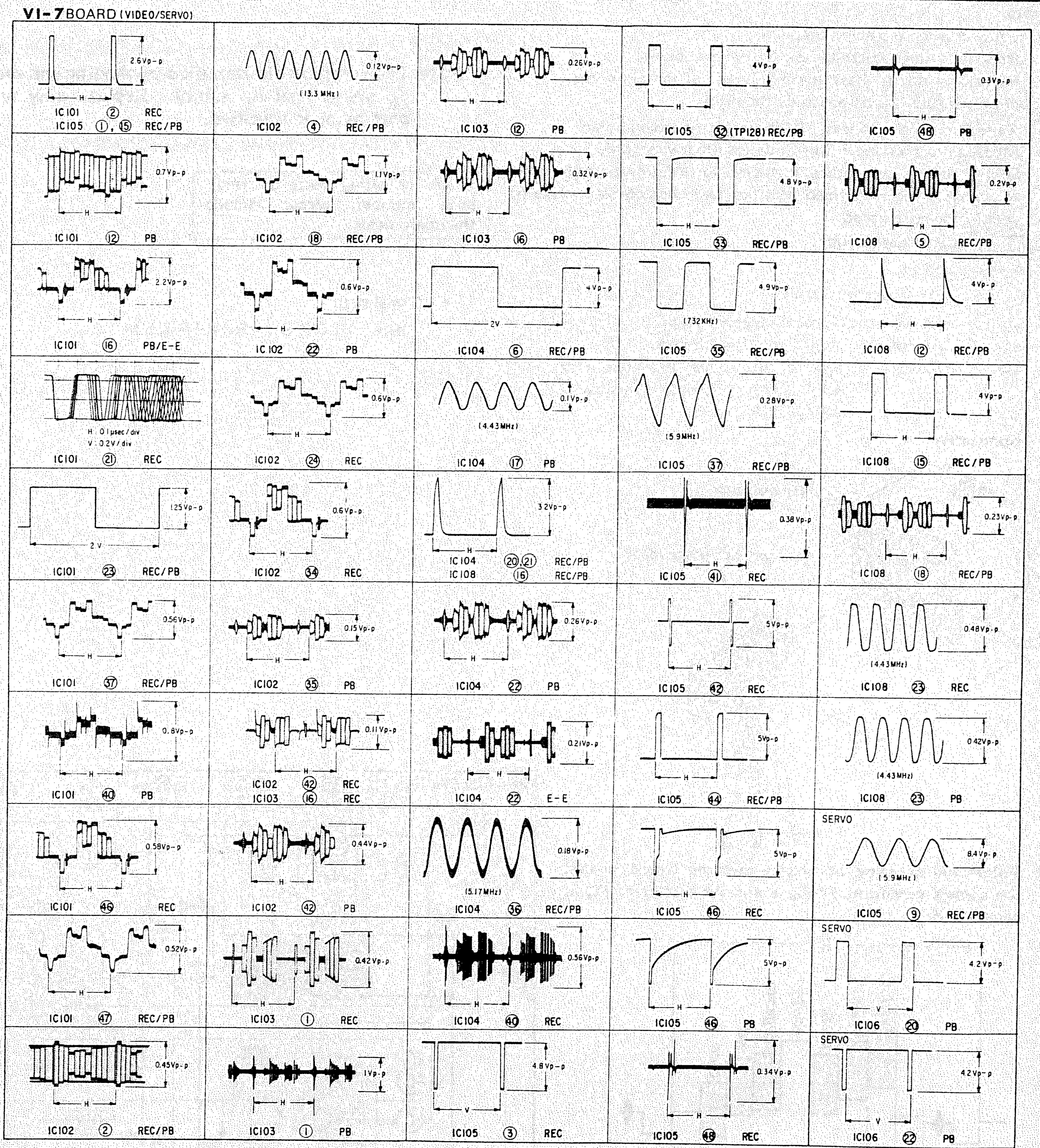
28
HS-5 BOARD (SOLDER SIDE)
HS-5 BOARD (COMPONENT SIDE)
DR901 DC/DC CONVERTER
BATT 5V
BATT GND
HEATER
CN404 WHT
CN403 BLK
Q601
Q602
Q603
Q604
Q605
Q607
Q608
Q609
1-613-572-
CN605 (WHT)
BATT GND
V SENS
TAPE TOP
GEW
DC OUT
UNREG 6V
MAIN 6V
SYS 5V
S/S 5V
BATT 6V
TO LENS
TO ZM-4 BOARD
MECHA DECK GND
TO SK-8 BOARD CN604
TO SK-8 BOARD CN603
TO SK-8 BOARD CN602
EX-3 BOARD (SOLDER SIDE)
EX-3 BOARD (COMPONENT SIDE)
1-616-661-
FE-4 BOARD (SOLDER SIDE)
FE-4 BOARD (COMPONENT SIDE)
1-613-256-
CN112 (WHT)
CN113 (WHT)
FLYING ERASE HEAD
MECHA DECK GND
TK-2 BOARD (SOLDER SIDE)
TK-2 BOARD (COMPONENT SIDE)
1-616-826-
GND
TK Vcc
EDIT 5V
EDIT ON
TO SK-8 BOARD CN606
GND 2
TE IN
LPF IN
Y-YG
LPF OUT
TE Vcc
TE OUT
DEMOD OUT
GND 1
PB Y IN
PB 5V


29
30
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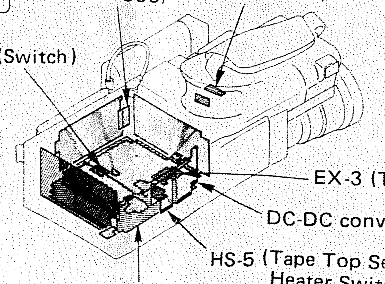
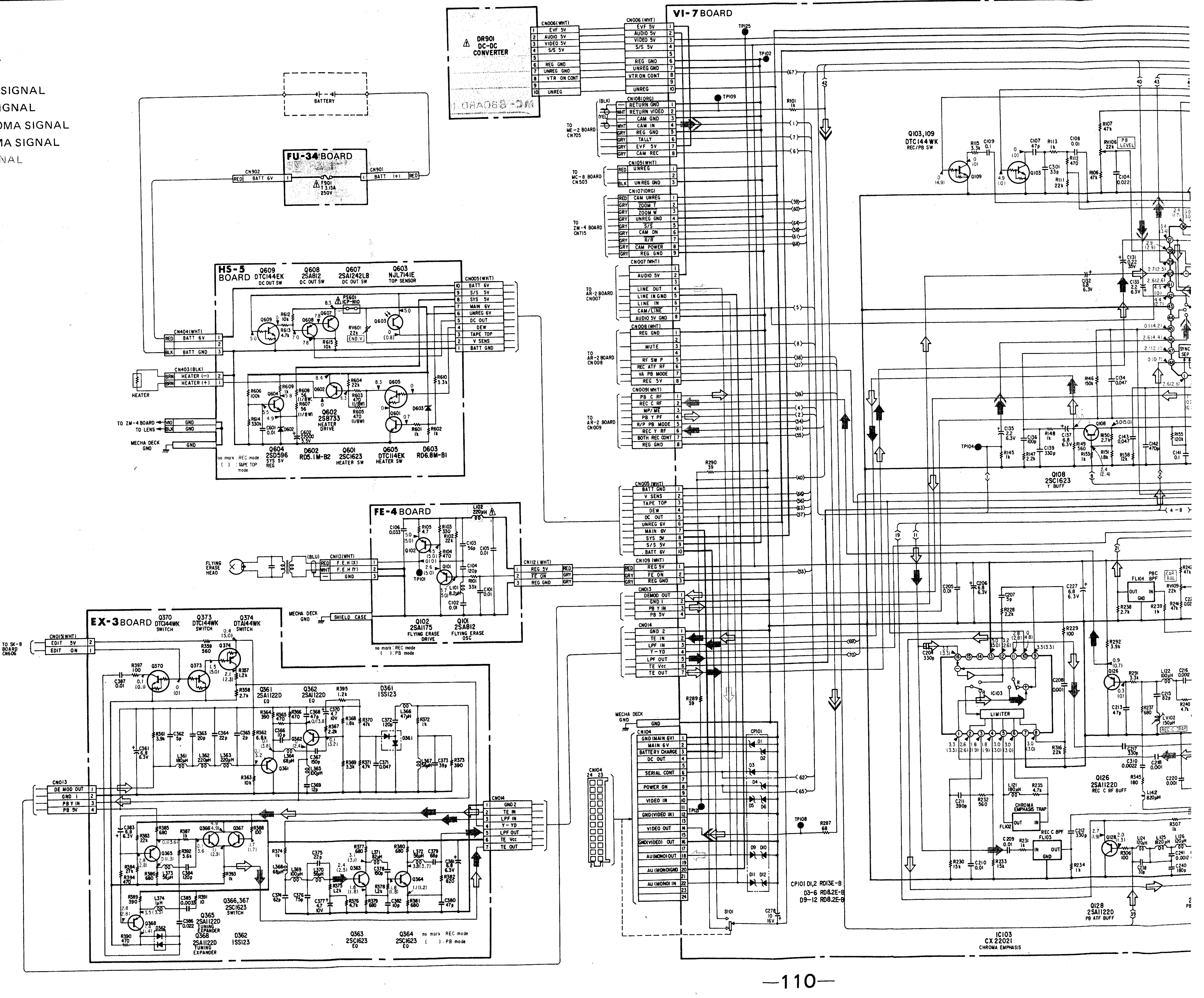
32
33
34
35
VI-7 BOARD (VIDEO/SERVO)
A
2.6Vp-p
H
IC101 ② REC
IC105 ①, ⑮ REC/PB
0.12Vp-p
(13.3 MHz)
IC102 ④ REC/PB
0.26Vp-p
H
IC103 ⑫ PB
4Vp-p
H
IC105 ㉜ (TP128) REC/PB
0.3Vp-p
H
IC105 ㊽ PB
B
0.7Vp-p
H
IC101 ⑫ PB
1.1Vp-p
H
IC102 ⑱ REC/PB
0.32Vp-p
H
IC103 ⑯ PB
4.8Vp-p
H
IC105 ㉝ REC/PB
0.2Vp-p
H
IC108 ⑤ REC/PB
2.2Vp-p
H
IC101 ⑯ PB/E-E
0.6Vp-p
H
IC102 ㉒ PB
4Vp-p
2V
IC104 ⑥ REC/PB
4.9Vp-p
(732KHz)
IC105 ㉟ REC/PB
4Vp-p
H
IC108 ⑫ REC/PB
C
H: 0.1μsec/div
V: 0.2V/div
IC101 ㉑ REC
0.6Vp-p
H
IC102 ㉔ REC
0.1Vp-p
(4.43MHz)
IC104 ⑰ PB
0.28Vp-p
(5.9MHz)
IC105 ㊲ REC/PB
4Vp-p
H
IC108 ⑮ REC/PB
D
1.25Vp-p
2V
IC101 ㉓ REC/PB
0.6Vp-p
H
IC102 ㉞ REC
3.2Vp-p
H
IC104 ⑳, ㉑ REC/PB
IC108 ⑯ REC/PB
0.38Vp-p
H
IC105 ㊶ REC
0.23Vp-p
H
IC108 ⑱ REC/PB
0.56Vp-p
H
IC101 ㊲ REC/PB
0.15Vp-p
H
IC102 ㉟ PB
0.26Vp-p
H
IC104 ㉒ PB
5Vp-p
H
IC105 ㊷ REC
0.48Vp-p
(4.43MHz)
IC108 ㉓ REC
E
0.8Vp-p
H
IC101 ㊵ PB
0.11Vp-p
H
IC102 ㊷ REC
IC103 ⑯ REC
0.21Vp-p
H
IC104 ㉒ E-E
5Vp-p
H
IC105 ㊹ REC/PB
0.42Vp-p
(4.43MHz)
IC108 ㉓ PB
F
0.58Vp-p
H
IC101 ㊻ REC
0.44Vp-p
H
IC102 ㊷ PB
0.18Vp-p
(5.17MHz)
IC104 ㊱ REC/PB
5Vp-p
H
IC105 ㊻ REC
SERVO
8.4Vp-p
(5.9MHz)
IC105 ⑨ REC/PB
0.52Vp-p
H
IC101 ㊼ REC/PB
0.42Vp-p
H
IC103 ① REC
0.56Vp-p
H
IC104 ㊵ REC
5Vp-p
H
IC105 ㊻ PB
SERVO
4.2Vp-p
V
IC106 ⑳ PB
G
0.45Vp-p
H
IC102 ② REC/PB
1Vp-p
H
IC103 ① PB
4.8Vp-p
V
IC105 ③ REC
0.34Vp-p
H
IC105 ㊽ REC
SERVO
4.2Vp-p
V
IC106 ㉒ PB
H
I
J


FE-4 (Erase OSC)
FU-34 (Fuse)
TK-2 (Switch)
EX-3 (Tuning Expander, EQ, ED Switch)
DC-DC converter DR901
HS-5 (Tape Top Sensor, Heater Switch)
VI-7 (Video)

VI-7 (Y & CHROMA SIGNAL PROCESS, PB PROCESS), FU-34 (FUSE), HS-5 (TAPE SENSOR, SWITCH), FE-4 (FLYING ERASE), EX-3 (TUNING EXPANDER, EQ, ED SWITCH), TK-2 (SWITCH) SCHEMATIC DIAGRAM

– Ref. No. FU-34 BOARD : 5000 series, HS-5 BOARD : 6000 series, VI-7, EX-3, TK-2 BOARD : 7000 series, FE-4 BOARD : 8000 series –

- Signal path
  - ➡ : REC Y SIGNAL
  - ⇨ : PB Y SIGNAL
  - ➡ : REC CHROMA SIGNAL
  - ⇨ : PB CHROMA SIGNAL
  - ➡ : REC Y & CHROMA SIGNAL
  - ⇨ : PB Y & CHROMA SIGNAL
  - ⇨ : PB AUDIO SIGNAL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14
15
16
A
B
C
D
E
F
G
H
I
J
VI-7 BOARD
DR901 DC-DC CONVERTER
BATTERY
FU-34 BOARD
F901 1.25A 250V
HS-5 BOARD
Q609 DTC144EK DC OUT SW
Q608 2SA812 DC OUT SW
Q607 2SA1242LB DC OUT SW
Q603 NJL7141E TOP SENSOR
Q604 2SD596 SYS 5V REG
D602 RD5.1M-B2
Q601 2SC1623 HEATER SW
Q605 DTC114EK HEATER SW
D603 RD6.8M-B1
Q602 2SB733 HEATER DRIVE
HEATER
FE-4 BOARD
FLYING ERASE HEAD
Q102 2SA1175 FLYING ERASE DRIVE
Q101 2SA812 FLYING ERASE OSC
EX-3 BOARD
Q370 DTC144WK SWITCH
Q373 DTC144WK SWITCH
Q374 DTA144WK SWITCH
Q361 2SA1220 EQ
Q362 2SA1220 EQ
D361 1SS123
Q366,367 2SC1623 SWITCH
Q368 2SA1220 TUNING EXPANDER
D362 1SS123
Q363 2SC1623 EQ
Q364 2SC1623 EQ
Q103,109 DTC144WK REC/PB SW
Q108 2SC1623 Y BUFF
IC103 CX22021 CHROMA EMPHASIS
LIMITER
Q126 2SA1220 REC C RF BUFF
Q128 2SA1220 PB ATF BUFF
CP101 D1,2 RD13E-B
D3-6 RD8.2E-B
D9-12 RD8.2E-B
TO ME-2 BOARD CN705
TO MC-8 BOARD CN503
TO ZM-4 BOARD CN715
TO AR-2 BOARD CN007
TO AR-2 BOARD CN008
TO AR-2 BOARD CN009
TO SK-8 BOARD CN606
TO ZM-4 BOARD TO LENS
MECHA DECK GND

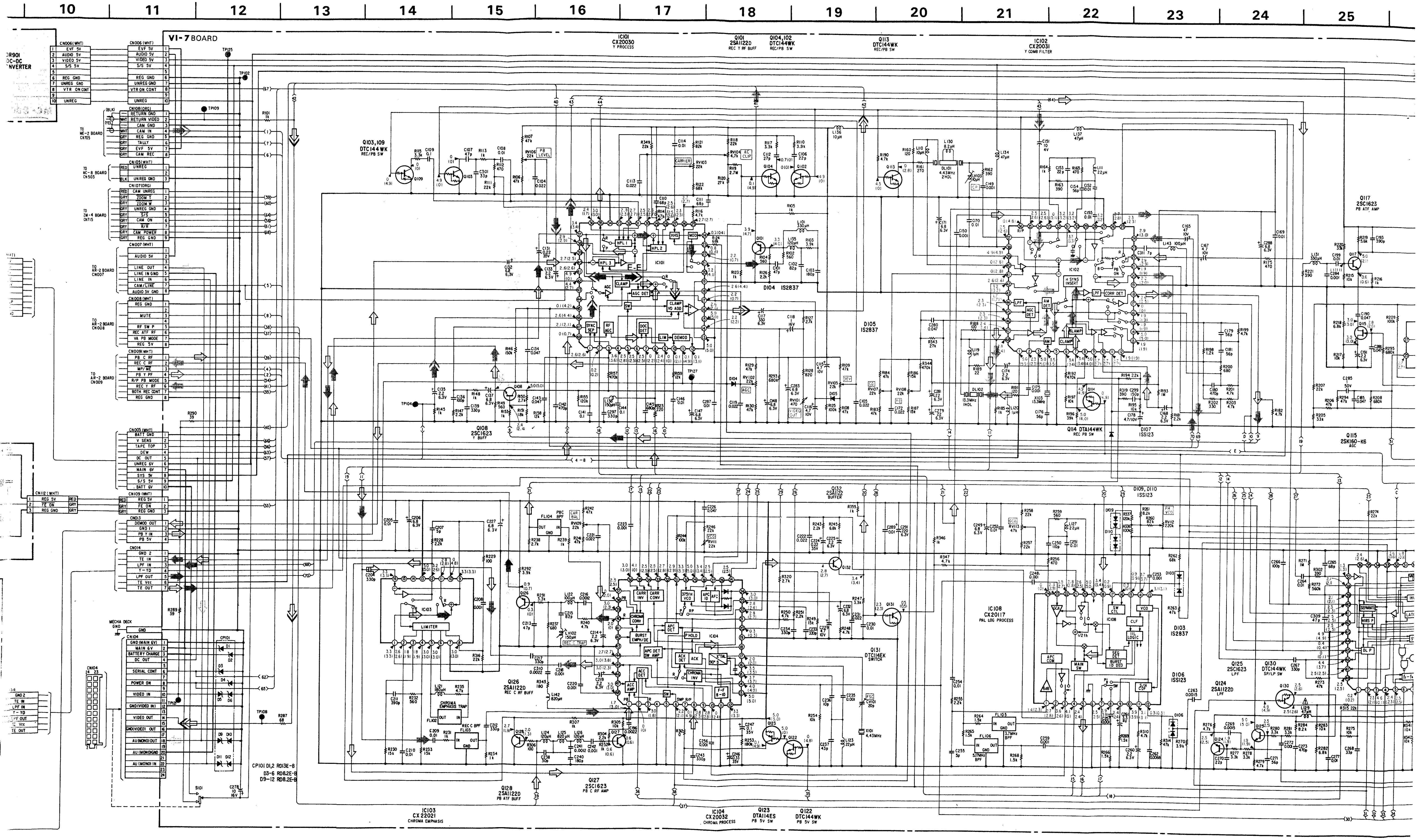
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Note:

- All resistors are in ohms, 1/10W unless otherwise noted.
- All capacitors are in μF (p:pF) unless otherwise noted.
  50V or less are not indicated except for electrolytic capacitors.
- All variable and semi fixed resistors have characteristic curve B, unless otherwise noted.
- ——— : B+ bus.
- ☐ : adjustment for repair.
- Voltage and waveform measuring conditions:
  - (1) Sample object: Pattern box colour bars.
  - (2) Voltage values: Relative to ground, measured with a DC digital multimeter (impedance 10M-ohm or more).

NING EXPANDER, EQ, ED SWITCH), TK-2 (SWITCH) SCHEMATIC DIAGRAM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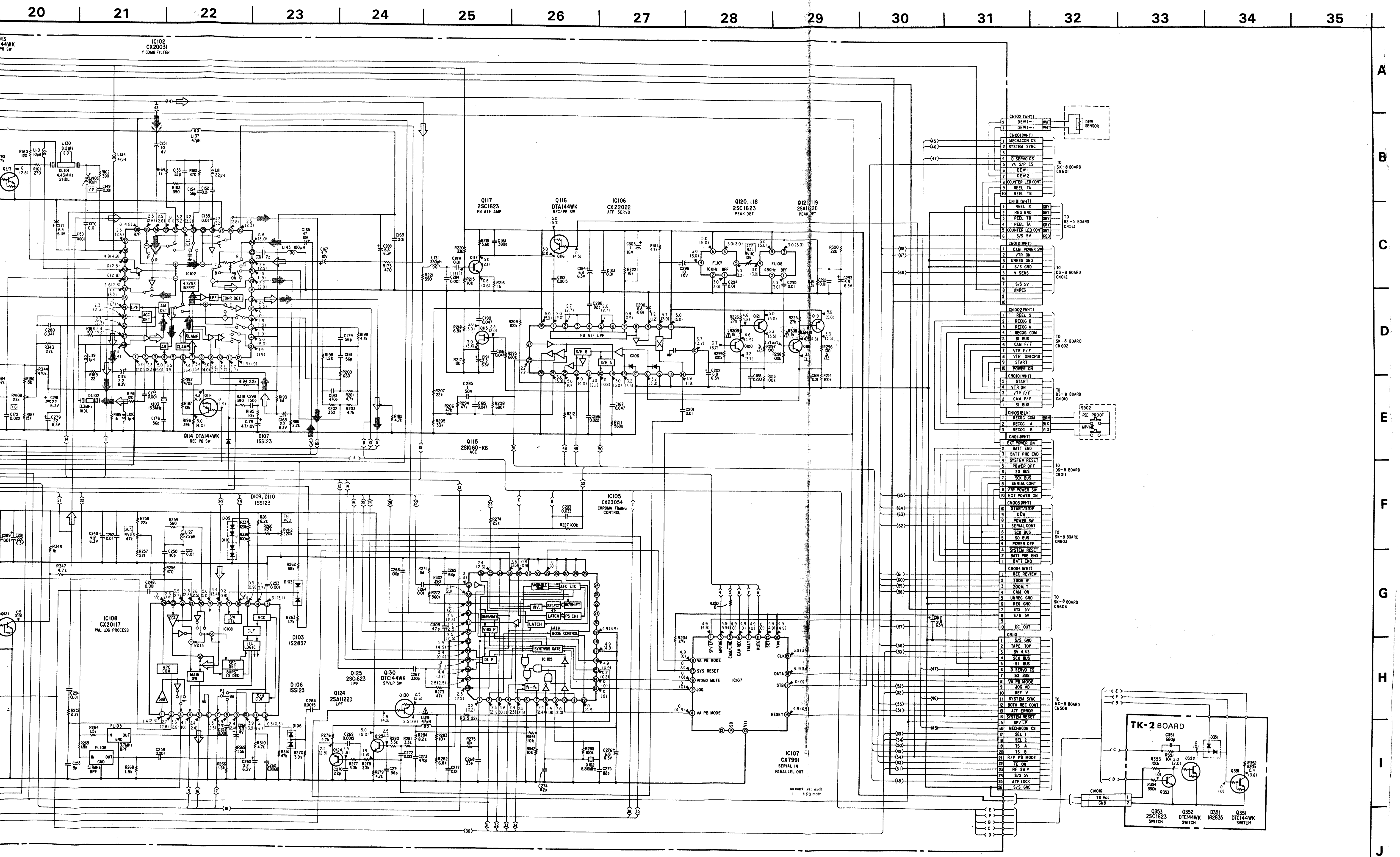
VI-7 BOARD
CR901 DC-DC CONVERTER
IC101 CX20030 Y PROCESS
Q101 2SA1122D REC Y RF BUFF
Q104,102 DTC144WK REC/PB SW
Q113 DTC144WK REC/PB SW
IC102 CX20031 Y COMB FILTER
Q103,109 DTC144WK REC/PB SW
Q117 2SC1623 PB ATF AMP
Q108 2SC1623 Y BUFF
D104 1S2837
D105 1S2837
Q114 DTA144WK REC PB SW
Q107 1SS123
Q115 2SK160-K6 AGC
TO ME-2 BOARD CN705
TO NC-8 BOARD CN503
TO ZM-4 BOARD CN715
TO AR-2 BOARD CN007
TO AR-2 BOARD CN008
TO AR-2 BOARD CN009
TP125
TP102
TP109
TP104
TP127
Q132 2SA1122 BUFFER
D109, D110 1SS123
IC108 CX20117 PAL LOG PROCESS
D103 1S2837
D106 1SS123
Q131 DTC114EK SWITCH
Q126 2SA1122D REC C RF BUFF
Q125 2SC1623 LPF
Q124 2SA1122D LPF
Q130 DTC144WK SP/LP SW
Q128 2SA1122D PB ATF BUFF
Q127 2SC1623 PB C RF AMP
IC103 CX22021 CHROMA EMPHASIS
IC104 CX20032 CHROMA PROCESS
Q123 DTA114ES PB 5V SW
Q122 DTC144WK PB 5V SW
MECHA DECK GND
CP101 D1,2 RD13E-B
D3-6 RD8.2E-B
D9-12 RD8.2E-B
S101
TP108
TP110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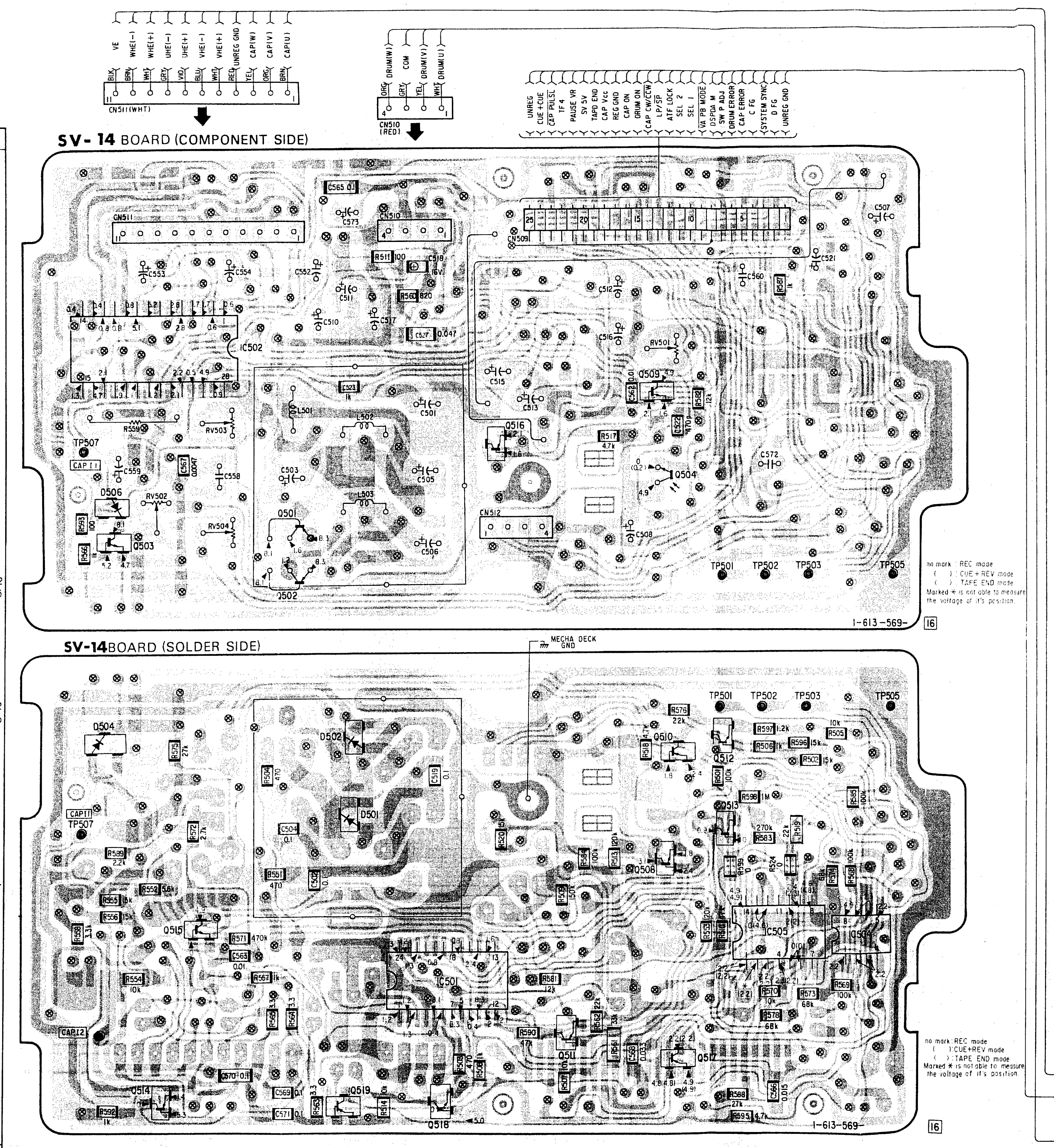
34
35
A
B
C
D
E
F
G
H
I
J
IC102
CX20031
Y COMB FILTER
Q117
2SC1623
PB ATF AMP
Q116
DTA144WK
REC/PB SW
IC106
CX22022
ATF SERVO
Q120, 118
2SC1623
PEAK DET
Q121, 119
2SA1122D
PEAK DET
PB ATF LPF
FL107
16KHz BPF
FL108
45KHz BPF
Q114 DTA144WK
REC PB SW
D107
1SS123
Q115
2SK160-K6
AGC
IC105
CX23054
CHROMA TIMING
CONTROL
D109, D110
1SS123
IC108
CX20117
PAL LOG PROCESS
D103
1S2837
D106
1SS123
Q125
2SC1623
LPF
Q130
DTC144WK
SP/LP SW
Q124
2SA1122D
LPF
IC107
CX7991
SERIAL IN
PARALLEL OUT
no mark : REC mode
( ) : PB mode
DL101
4.43MHz
2HDL
DL102
3.3MHz
1HDL
FL105
3.7MHz
BPF
FL106
5.7MHz
BPF
X103
3.3MHz
X102
5.86MHz
CN102 (WHT)
DEW(−)
DEW(+)
DEW SENSOR
CN001(WHT)
MECHACON CS
SYSTEM SYNC
D SERVO CS
VA S/P CS
DEW 1
DEW 2
COUNTER LED CONT
REEL TA
REEL TB
TO SK-8 BOARD CN601
CN101(WHT)
REEL S
REG GND
REEL TB
REEL TA
COUNTER LED CONT
S/S 5V
TO RS-5 BOARD CN513
CN012(WHT)
CAM POWER SW
VTR ON
UNREG GND
S/S GND
V SENS
S/S 5V
UNREG
TO DS-8 BOARD CN012
CN002(WHT)
REEL S
RECOG B
RECOG A
RECOG COM
SI BUS
CAM F/F
VTR F/F
VTR ON(CPU)
START
POWER ON
TO SK-8 BOARD CN602
CN010(WHT)
START
VTR ON
VTP F/F
CAM F/F
SI BUS
TO DS-8 BOARD CN010
CN103(BLK)
RECOG COM
RECOG A
RECOG B
S902
REC PROOF
MP/ME
CN011(WHT)
EXT POWER ON
BATT END
BATT PRE END
SYSTEM RESET
POWER OFF
SO BUS
SCK BUS
SERIAL CONT
VTR POWER SW
EXT POWER ON
TO DS-8 BOARD CN011
CN003(WHT)
START/STOP
DEW
POWER SW
SERIAL CONT
SCK BUS
SO BUS
POWER OFF
SYSTEM RESET
BATT PRE END
BATT END
TO SK-8 BOARD CN603
CN004(WHT)
REC REVIEW
ZOOM W
ZOOM T
CAM ON
UNREG GND
REG GND
SYS 5V
S/S 5V
DC OUT
TO SK-8 BOARD CN604
CN110
S/S GND
TAPE TOP
5V 4.43
SCK BUS
SI BUS
D SERVO CS
SO BUS
VA PB MODE
JOG VD
REF V
SYSTEM SYNC
BOTH REC CONT
ATF ERROR
SYSTEM RESET
SP/LP
MECHACON CS
SEL 1
SEL 2
TS A
TS B
R/P PB MODE
FE ON
RF SWP
S/S 5V
ATF LOCK
S/S GND
TO MC-8 BOARD CN506
TK-2 BOARD
CN016
TK Vcc
GND
Q353
2SC1623
SWITCH
Q352
DTC144WK
SWITCH
D351
1S2835
Q351
DTC144WK
SWITCH

SERVO/MECHANISM CONTROL

MC-8 (SERVO, MECHANISM CONTROL), SV-14 (DRUM MOTOR/CAPSTAN MOTOR DRIVE), MS-4 (MODE SWITCH, MODE CONTROL MOTOR), LS-9 (LOADING SWITCH), LD-1 (TAPE SENSOR LED), RS-5 (LOADING MOTOR/CONTROL MO

– Ref. No. SV-14, MS-4, LS-9, LD-1 BOARD : 5000 series, MC-8 BOARD : 7000 series, RS-5 BOARD 8000 series –

Q, IC	D	ADJ	TP
IC502		RV501	
509			
		RV503	
516			507
504			
506		RV502	
501		RV504	
503			
502			501,502 503,505
			501,502 503,505
512	504		
510	502		
513	501		507
508			
515 IC505 IC504			
IC501			
511 517			
514, 518 519			
Q, IC	D	ADJ	TP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A
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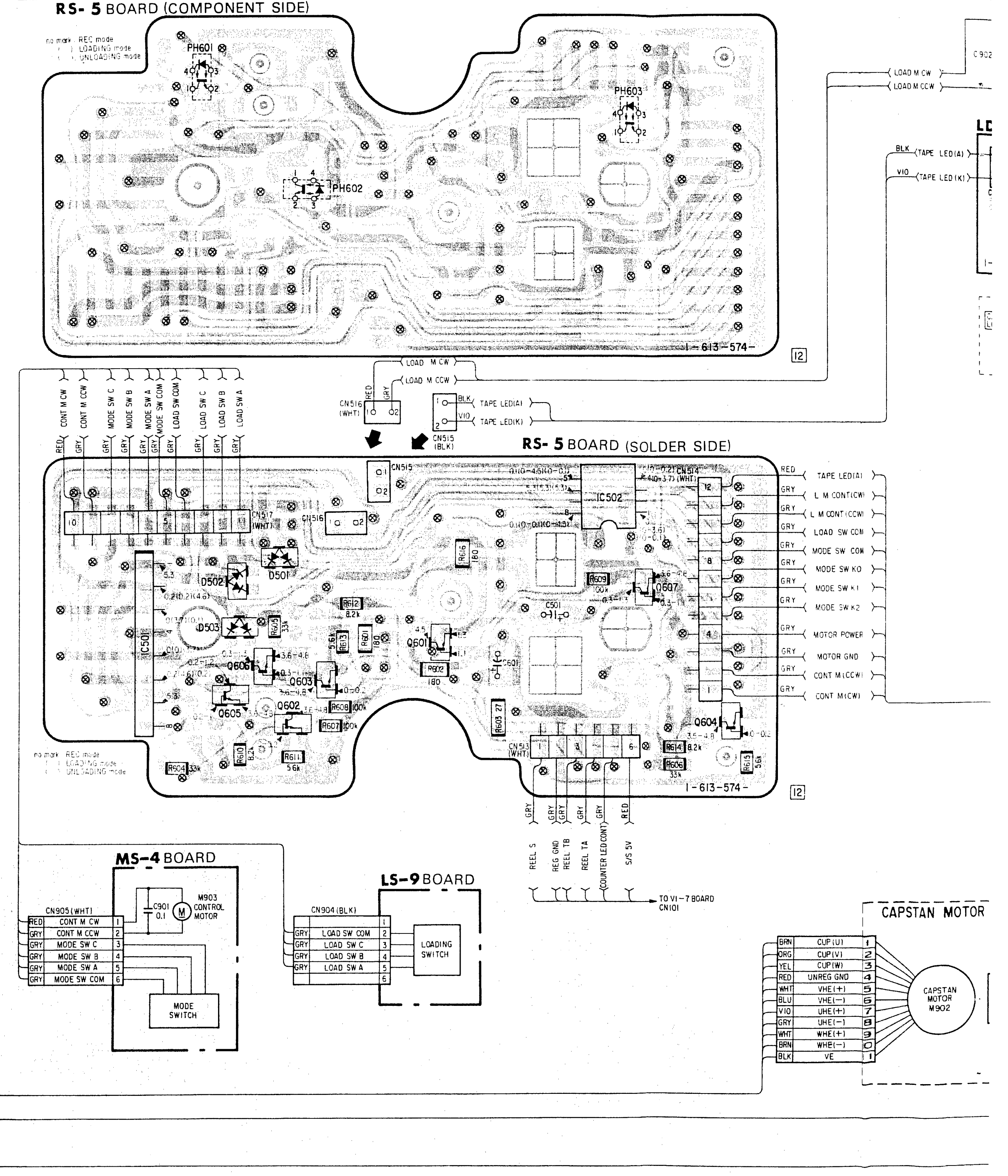
C
D
E
F
G
H
I
J
VE
WHE(−)
WHE(+)
UHE(−)
UHE(+)
VHE(−)
VHE(+)
UNREG GND
CAP(W)
CAP(V)
CAP(U)
BLK
BRN
WHT
GRY
VIO
BLU
WHT
RED
YEL
ORG
BRN
CN511(WHT)
DRUM(W)
COM
DRUM(V)
DRUM(U)
ORG
GRY
YEL
WHT
CN510 (RED)
UNREG
CUE+CUE
CAP PULSL
TF 4
PAUSE VR
SV 5V
TAPD END
CAP Vcc
REG GND
CAP ON
DRUM ON
CAP CW/CCW
LP/SP
ATF LOCK
SEL 2
SEL 1
VA PB MODE
DSPDA M
SW P ADJ
DRUM ERROR
CAP ERROR
C FG
SYSTEM SYNC
D FG
UNREG GND
CN509
IC502
IC501
IC504
IC505
RV501
RV502
RV503
RV504
TP501
TP502
TP503
TP505
TP507
MECHA DECK GND
no mark : REC mode
( ) : CUE+REV mode
( ) : TAPE END mode
Marked ✱ is not able to measure the voltage of it's position.
1-613-569-
16

SV- 14 BOARD (COMPONENT SIDE)

SV-14 BOARD (SOLDER SIDE)

Q·IC	IC501	605	606	602	603	601	IC502	607	604	Q·IC
D		502 503	501							D


no mark : REC mode
( ) : LOADING mode
( ) : UNLOADING mode
PH601
PH602
PH603
1-613-574-
12
LOAD M CW
LOAD M CCW
CN516 (WHT)
RED
GRY
CN515 (BLK)
BLK
VIO
TAPE LED(A)
TAPE LED(K)
CONT M CW
CONT M CCW
MODE SW C
MODE SW B
MODE SW A
MODE SW COM
LOAD SW COM
LOAD SW C
LOAD SW B
LOAD SW A
CN517 (WHT)
CN514 (WHT)
CN513 (WHT)
IC501
IC502
TAPE LED(A)
L M CONT(CW)
L M CONT(CCW)
LOAD SW COM
MODE SW COM
MODE SW KO
MODE SW K1
MODE SW K2
MOTOR POWER
MOTOR GND
CONT M(CCW)
CONT M(CW)
REEL S
REG GND
REEL TB
REEL TA
(COUNTER LED CONT)
S/S 5V
TO VI-7 BOARD CN101
CN905(WHT)
C901 0.1
M903 CONTROL MOTOR
MODE SWITCH
CN904(BLK)
LOADING SWITCH
CAPSTAN MOTOR
CUP(U)
CUP(V)
CUP(W)
UNREG GND
VHE(+)
VHE(−)
UHE(+)
UHE(−)
WHE(+)
WHE(−)
VE
CAPSTAN MOTOR M902
LD
C902
10
11
12
13
14
15
16

RS- 5 BOARD (COMPONENT SIDE)

RS- 5 BOARD (SOLDER SIDE)

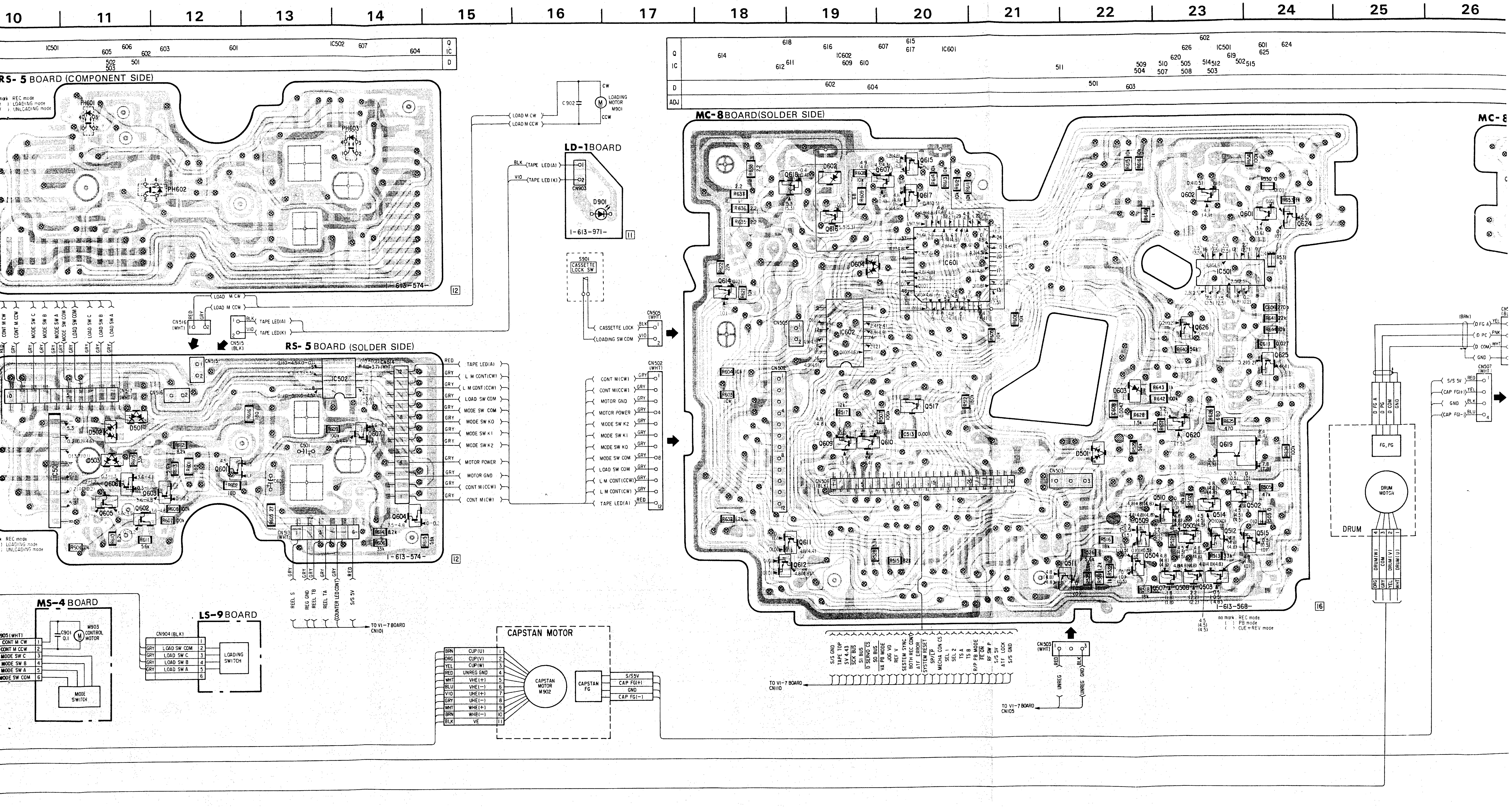
MS-4 BOARD

LS-9 BOARD

Note:

- ⊗ : Through hole.
- ▨ : pattern from the side which enables seeing.
- ▨ : B+ pattern from the side which enables seeing.
- ▨ : pattern of the rear side.

R), LS-9 (LOADING SWITCH), LD-1 (TAPE SENSOR LED), RS-5 (LOADING MOTOR/CONTROL MOTOR DRIVE) PRINTED WIRING BOARDS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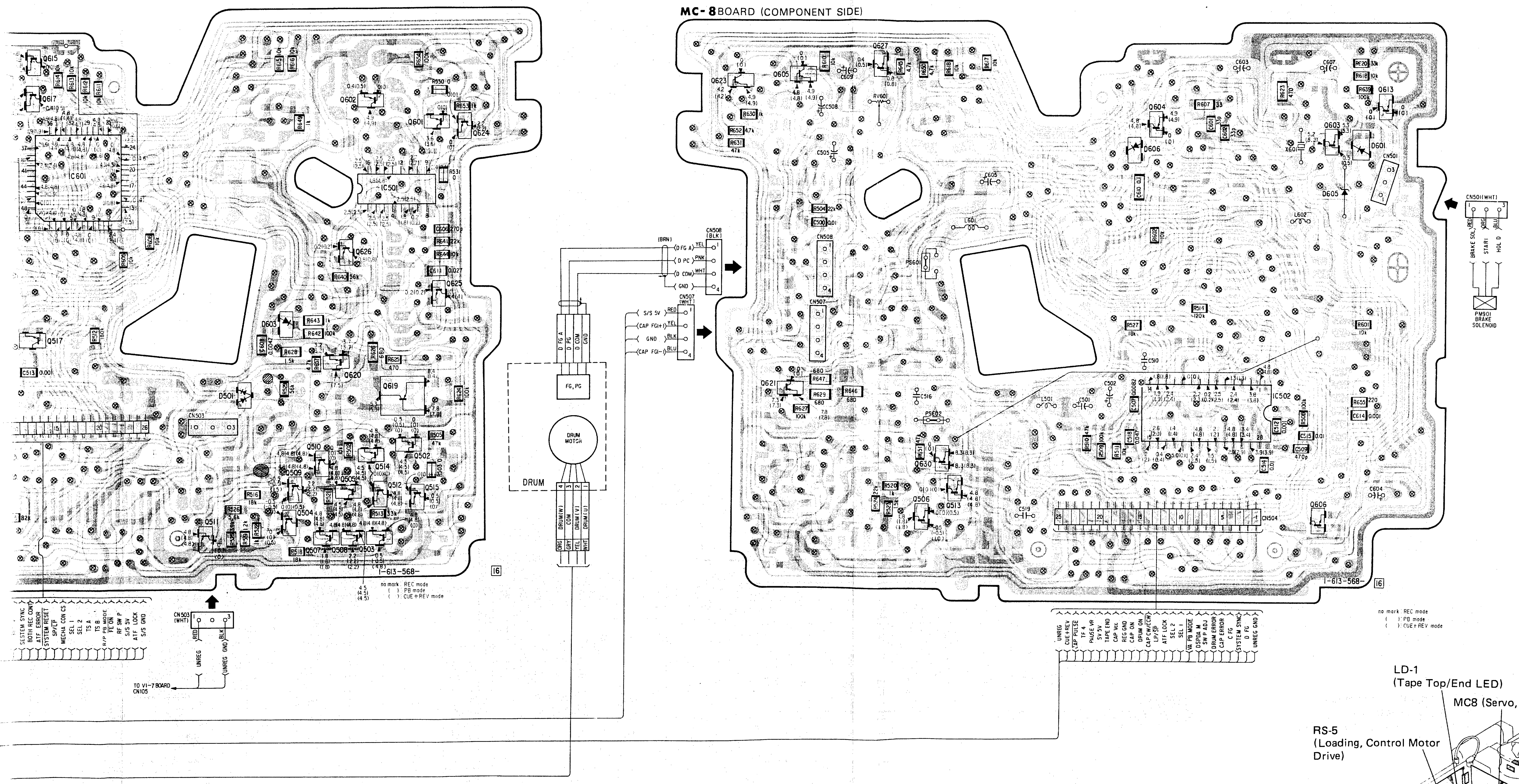
26
RS-5 BOARD (COMPONENT SIDE)
PH601
PH602
PH603
1-613-574-
LD-1 BOARD
LOADING MOTOR M901
C902
CW
CCW
LOAD M CW
LOAD M CCW
TAPE LED(A)
TAPE LED(K)
CN903
D901
1-613-971-
S901 CASSETTE LOCK SW
CASSETTE LOCK
LOADING SW COM
CN505 (WHT)
CN516 (WHT)
CN515 (BLK)
RS-5 BOARD (SOLDER SIDE)
IC502
CN514
CN517 (WHT)
CN513 (WHT)
Q601
Q602
Q603
Q604
Q605
Q606
Q607
D501
D502
D503
IC501
CONT M CW
CONT M CCW
MODE SW C
MODE SW B
MODE SW A
MODE SW COM
LOAD SW COM
LOAD SW C
LOAD SW B
LOAD SW A
L M CONT(CW)
L M CONT(CCW)
MODE SW KO
MODE SW K1
MODE SW K2
MOTOR POWER
MOTOR GND
CONT M(CCW)
CONT M(CW)
CN502 (WHT)
REEL S
REG GND
REEL TB
REEL TA
(COUNTER LED CONT)
S/S 5V
TO VI-7 BOARD CN101
MS-4 BOARD
CN905 (WHT)
C901
M903 CONTROL MOTOR
MODE SWITCH
LS-9 BOARD
CN904 (BLK)
LOADING SWITCH
CAPSTAN MOTOR
CAPSTAN MOTOR M902
CAPSTAN FG
CUP(U)
CUP(V)
CUP(W)
UNREG GND
VHE(+)
VHE(-)
UHE(+)
UHE(-)
WHE(+)
WHE(-)
VE
S/S5V
CAP FG(+)
GND
CAP FG(-)
MC-8 BOARD (SOLDER SIDE)
IC601
IC602
IC501
Q501
Q502
Q503
Q504
Q505
Q507
Q508
Q509
Q510
Q511
Q512
Q514
Q515
Q517
Q601
Q602
Q603
Q604
Q607
Q609
Q610
Q611
Q612
Q614
Q615
Q616
Q617
Q618
Q619
Q620
Q624
Q625
Q626
D501
D602
CN502
CN503
CN505
CN506 (BLK)
CN507 (WHT)
1-613-568-
S/S GND
TAPE TOP
SV 4.43
SCK BUS
SI BUS
D SERVO CS
SO BUS
VA PB MODE
JOG VD
REF V
SYSTEM SYNC
BOTH REC CONT
ATF ERROR
SYSTEM RESET
SP/LP
MECHA CON CS
SEL 1
SEL 2
TS A
TS B
R/P PB MODE
RF SW P
S/S 5V
ATF LOCK
S/S GND
TO VI-7 BOARD CN110
CN503 (WHT)
UNREG
GND
TO VI-7 BOARD CN105
DRUM
DRUM MOTOR
FG,PG
D FG A
D PG
D COM
GND
DRUM(W)
COM
DRUM(V)
DRUM(U)
S/S 5V
CAP FG(+)
CAP FG(-)
MC-8
no mark : REC mode
( ) : PB mode
( ) : CUE+REV mode

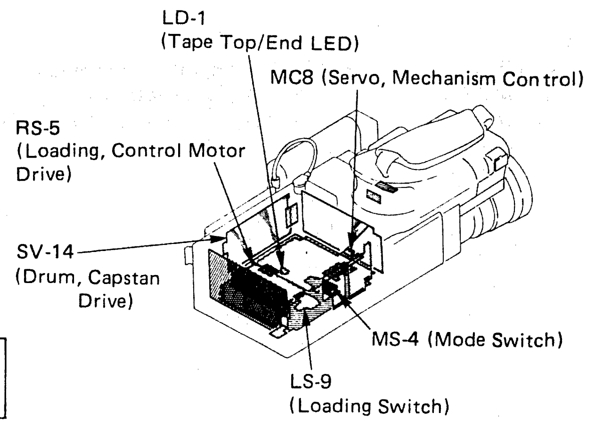
SERVO/MECHANISM CONTROL SERVO/MECHANISM CONTROL

	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Q, IC	615 617 IC601		511 509 504	602 626 IC501 620 510 505 514 512 619 502 507 508 503	601 624 625 515			623 605 621	627 629 506	630 513		604 IC502	603 606	613		
D			501 603									606		605 601		
ADJ									RV601							

A B C D E F G H I J

MC-8 BOARD (COMPONENT SIDE)


Q615
Q617
IC601
Q517
C513 0.001
D501
CN503
Q511
Q504
Q509
Q510
Q505
Q507
Q508
Q503
Q514
Q512
Q502
Q515
Q602
Q601
Q624
IC501
Q626
Q625
D603
Q620
Q619
1-613-568-
16
no mark : REC mode
( ) : PB mode
( ) : CUE+REV mode
SESTEM SYNC
BOTH REC CONT
ATF ERROR
SYSTEM RESET
SP/LP
MECHA CON CS
SEL 1
SEL 2
TS A
TS B
R/P PB MODE
FE ON
RF SW P
S/S 5V
ATF LOCK
S/S GND
CN503 (WHT)
RED
BLK
UNREG
UNREG GND
TO VI-7 BOARD CN105
(BRN)
D FG A
D PC
D COM
GND
YEL
PNK
WHT
CN508 (BLK)
CN507 (WHT)
S/S 5V
CAP FG(+)
GND
CAP FG(-)
RED
YEL
BLK
BLU
D FG A
D PG
D COM
GND
FG, PG
DRUM MOTOR
DRUM
DRUM(W)
COM
DRUM(V)
DRUM(U)
ORG
GRY
YEL
WHT
Q623
Q605
Q627
RV601
Q604
Q606
Q603
Q613
D601
D605
CN501
L601
L602
PS601
Q621
Q630
Q506
Q513
IC502
CN504
Q606
1-613-568-
16
no mark REC mode
( ) PB mode
( ) CUE+REV mode
UNREG
CUE+REV
CAP PULSE
TF 4
PAUSE VR
SV 5V
TAPE END
CAP Vcc
REG GND
CAP ON
DRUM ON
CAP CW/CCW
LP/SP
ATF LOCK
SEL 2
SEL 1
VA PB MODE
DSPDA M
SW P ADJ
DRUM ERROR
CAP ERROR
C FG
SYSTEM SYNC
D FG
UNREG GND
CN501 (WHT)
RED
ORG
BLU
BRAKE SOL.
STARI
HOL D
PM901 BRAKE SOLENOID

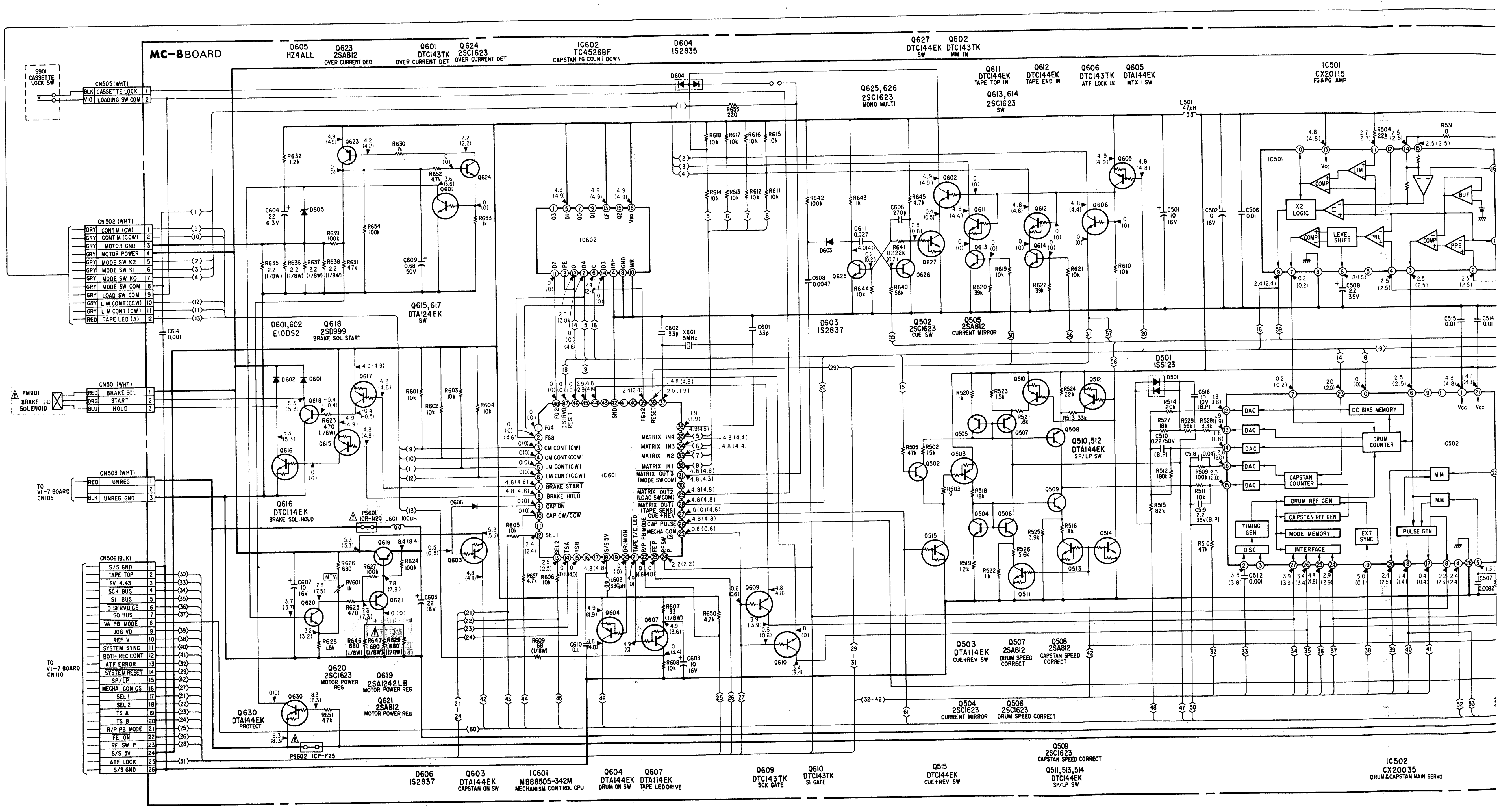

LD-1
(Tape Top/End LED)
MC8 (Servo, Mechanism Control)
RS-5
(Loading, Control Motor Drive)
SV-14
(Drum, Capstan Drive)
MS-4 (Mode Switch)
LS-9
(Loading Switch)

Caution:	
Pattern face side: (Solder Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the part face are indicated.

When indicating parts by reference number, please include the board name.

MC-8 (SERVO, MECHANISM CONTROL), SV-14 (DRUM MOTOR/CAPSTAN MOTOR DRIVE), MS-4 (MODE SWITCH, MODE CONTROL MOTOR), LS-9 (LOADING SWITCH), LD-1 (TAPE SENSOR LED), RS-5 (LOADING MOTOR/CONTROL MOTOR DR

– Ref. No. SV-14, MS-4, LS-9, LD-1 BOARD : 5000 series, MC-8 BOARD : 7000 series, RS-5 BOARD 8000 series –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A
B
C
D
E
F
G
H
I
J
MC-8 BOARD
S901 CASSETTE LOCK SW
CN505 (WHT)
BLK CASSETTE LOCK
VIO LOADING SW COM
CN502 (WHT)
CONT M (CW)
CONT M (CCW)
MOTOR GND
MOTOR POWER
MODE SW K2
MODE SW K1
MODE SW K0
MODE SW COM
LOAD SW COM
L M CONT (CCW)
L M CONT (CW)
TAPE LED (A)
PM901 BRAKE SOLENOID
CN501 (WHT)
BRAKE SOL
START
HOLD
TO VI-7 BOARD CN105
CN503 (WHT)
UNREG
UNREG GND
CN506 (BLK)
S/S GND
TAPE TOP
SV 4.43
SCK BUS
SI BUS
D SERVO CS
SO BUS
VA PB MODE
JOG VD
REF V
SYSTEM SYNC
BOTH REC CONT
ATF ERROR
SYSTEM RESET
SP/LP
MECHA CON CS
SEL 1
SEL 2
TS A
TS B
R/P PB MODE
FE ON
RF SW P
S/S 5V
ATF LOCK
S/S GND
TO VI-7 BOARD CN110
D605 HZ4ALL
Q623 2SA812 OVER CURRENT DED
Q601 DTC143TK OVER CURRENT DET
Q624 2SC1623 OVER CURRENT DET
IC602 TC4526BF CAPSTAN FG COUNT DOWN
D604 1S2835
Q627 DTC144EK SW
Q602 DTC143TK MM IN
Q611 DTC144EK TAPE TOP IN
Q612 DTC144EK TAPE END IN
Q606 DTC143TK ATF LOCK IN
Q605 DTA144EK MTX 1 SW
Q625,626 2SC1623 MONO MULTI
Q613,614 2SC1623 SW
IC501 CX20115 FG&PG AMP
L501 47μH
R655 220
IC602
D601,602 E10DS2
Q618 2SD999 BRAKE SOL. START
Q615,617 DTA124EK SW
C614 0.001
X601 5MHz
C602 33p
C601 33p
D603 1S2837
Q502 2SC1623 CUE SW
Q505 2SA812 CURRENT MIRROR
D501 1SS123
IC601
FG4
FG8
CM CONT (CW)
CM CONT (CCW)
LM CONT (CW)
LM CONT (CCW)
BRAKE START
BRAKE HOLD
CAP ON
CAP CW/CCW
SEL1
MATRIX IN4
MATRIX IN3
MATRIX IN2
MATRIX IN1
MATRIX OUT3 (MODE SW COM)
MATRIX OUT2 (LOAD SW COM)
MATRIX OUT1 (TAPE SENS)
CUE+REV
CAP PULSE
MODE CON
Q616 DTC114EK BRAKE SOL. HOLD
PS601 ICP-N20
L601 100μH
D606
Q603
Q619
Q620
Q621
Q604
Q607
Q609
Q610
L602 330μH
Q630 DTA144EK PROTECT
PS602 ICP-F25
Q620 2SC1623 MOTOR POWER REG
Q619 2SA1242LB MOTOR POWER REG
Q621 2SA812 MOTOR POWER REG
D606 1S2837
Q603 DTA144EK CAPSTAN ON SW
IC601 MB88505-342M MECHANISM CONTROL CPU
Q604 DTA144EK DRUM ON SW
Q607 DTA114EK TAPE LED DRIVE
Q609 DTC143TK SCK GATE
Q610 DTC143TK SI GATE
Q503 DTA114EK CUE+REV SW
Q507 2SA812 DRUM SPEED CORRECT
Q508 2SA812 CAPSTAN SPEED CORRECT
Q504 2SC1623 CURRENT MIRROR
Q506 2SC1623 DRUM SPEED CORRECT
Q509 2SC1623 CAPSTAN SPEED CORRECT
Q515 DTC144EK CUE+REV SW
Q511,513,514 DTC144EK SP/LP SW
Q510,512 DTA144EK SP/LP SW
IC502 CX20035 DRUM&CAPSTAN MAIN SERVO
IC501
X2 LOGIC
LEVEL SHIFT
COMP
LIM
BUF
PPE
DAC
DC BIAS MEMORY
DRUM COUNTER
CAPSTAN COUNTER
DRUM REF GEN
CAPSTAN REF GEN
MODE MEMORY
INTERFACE
TIMING GEN
OSC
EXT SYNC
PULSE GEN
MM
IC502
Vcc

MC-8 BOARD

REF		LP REC	LP CUE+REV	SP REC	SP CUE+REV
Q502	B	0	0.6	0	0.6
	C	4.4	0	4.4	0
	E	4.8	0	4.8	0
Q503	B	4.8	—	4.8	—
	C	-0.3	—	-0.3	—
	E	4.8	—	4.8	—
Q504	B	-0.3	—	-0.3	—
	C	-0.3	—	-0.3	—
	E	0	—	0	—
Q505	B	4.4	4.0	4.4	4.0
	C	4.4	4.6	4.4	4.6
	E	4.8	4.0	4.8	4.0
Q506	B	-0.3	—	-0.3	—
	C	1.9	—	1.9	—
	E	0	—	0	—
Q507	B	4.4	—	4.4	—
	C	1.9	—	1.9	—
	E	4.8	—	4.8	—
Q508	B	4.4	—	4.4	—
	C	2.4	—	2.1	—
	E	4.8	—	4.8	—
Q509	B	-0.3	—	-0.3	—
	C	2.4	—	2.1	—
	E	0	—	0	—
Q510	B	4.8	—	0	—
	C	4.8	—	4.8	—
	E	4.8	—	4.8	—
Q511	B	0	—	4.8	—
	C	0	—	0	—
	E	GND	—	GND	—
Q512	B	4.8	—	0	—
	C	4.8	—	4.8	—
	E	4.8	—	4.8	—
Q513	B	0	—	4.8	—
	C	0	—	0	—
	E	GND	—	GND	—
Q514	B	0	—	4.8	—
	C	4.8	—	0	—
	E	GND	—	GND	—
Q515	B	0	4.5	0	4.5
	C	4.8	0	4.8	0
	E	GND	GND	GND	GND
Q517	B	0	—	4.8	—
	C	0.7	—	0	—
	E	GND	—	GND	—

Note:

- All resistors are in ohms, 1/10W unless otherwise noted.
- All capacitors are in μF (p:pF) unless otherwise noted. 50V or less are not indicated except for electrolytic capacitors.
- All variable and semi fixed resistors have characteristic curve B, unless otherwise noted.

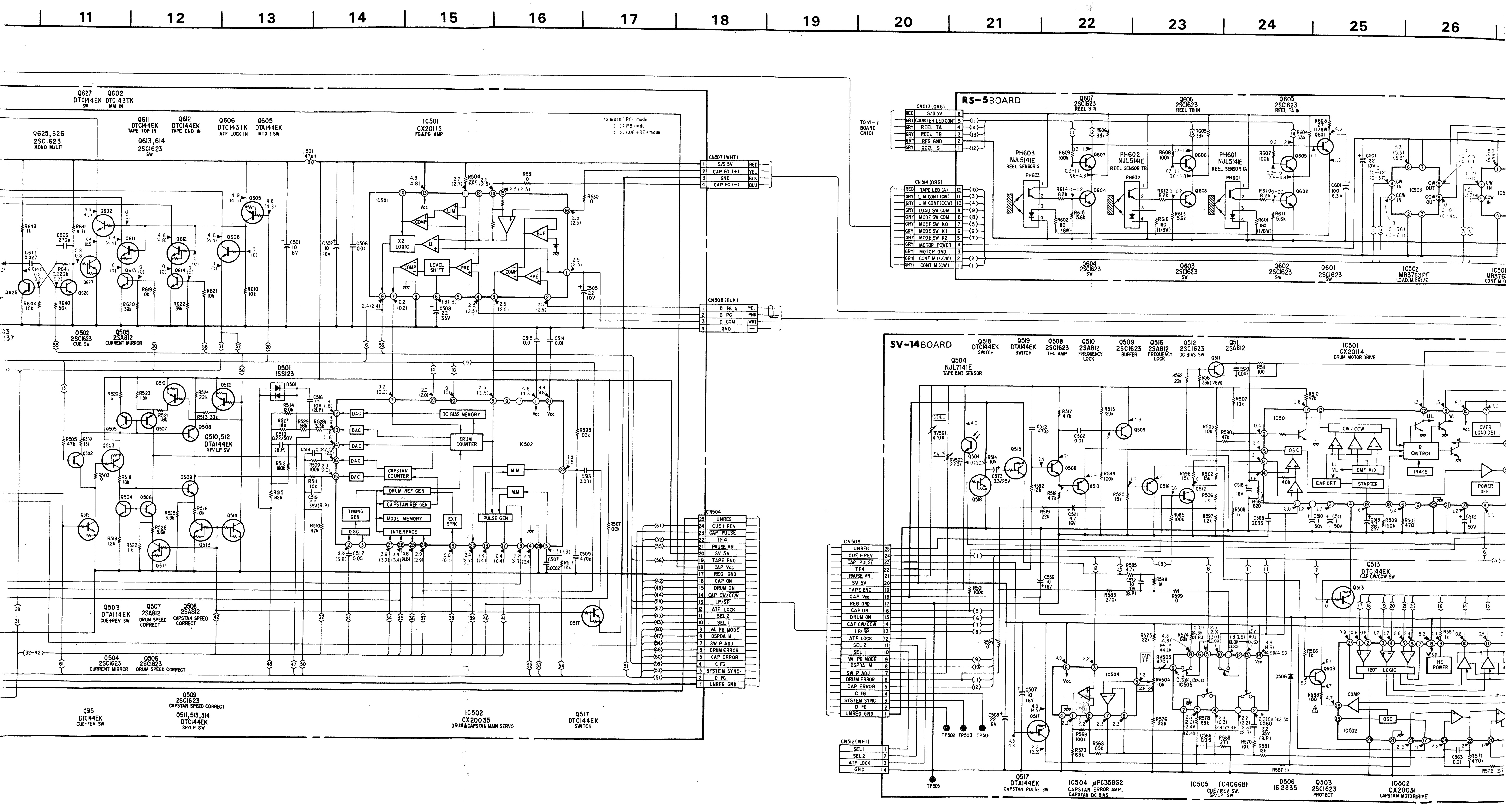
- ——— : B+ bus.
- ▭ : adjustment for repair.
- Voltage and waveform measuring conditions:
  - (1) Sample object: Pattern box colour bars.
  - (2) Voltage values: Relative to ground, measured with a DC digital multimeter (impedance 10M-ohm or more).

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

ANISM CONTROL

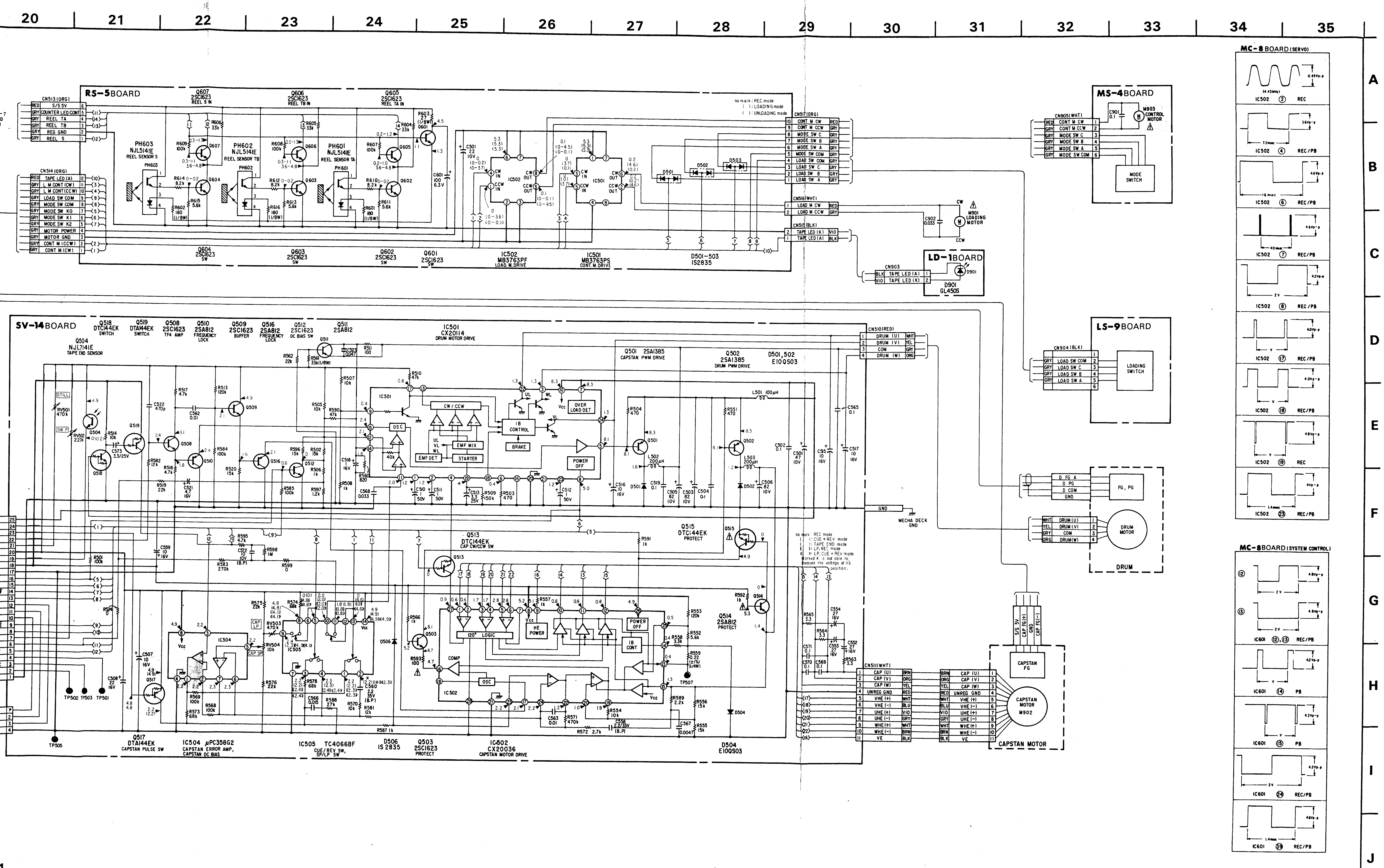
LOADING SWITCH), LD-1 (TAPE SENSOR LED), RS-5 (LOADING MOTOR/CONTROL MOTOR DRIVE) SCHEMATIC DIAGRAM


11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
Q627 DTC144EK SW
Q602 DTC143TK MM IN
Q625,626 2SC1623 MONO M/ULTI
Q611 DTC144EK TAPE TOP IN
Q612 DTC144EK TAPE END IN
Q613,614 2SC1623 SW
Q606 DTC143TK ATF LOCK IN
Q605 DTA144EK MTX 1 SW
IC501 CX20115 FG&PG AMP
no mark : REC mode
( ) : PB mode
( ) : CUE+REV mode
L501 47μH
CN507 (WHT)
S/S 5V
CAP FG (+)
GND
CAP FG (−)
CN508 (BLK)
D FG A
D PG
D COM
GND
X2 LOGIC
LIM
COMP
LEVEL SHIFT
PRE
PPE
BUF
Q502 2SC1623 CUE SW
Q505 2SA812 CURRENT MIRROR
D501 1SS123
Q510,512 DTA144EK SP/LP SW
DAC
DC BIAS MEMORY
DRUM COUNTER
CAPSTAN COUNTER
DRUM REF GEN
CAPSTAN REF GEN
MODE MEMORY
INTERFACE
TIMING GEN
OSC
EXT SYNC
PULSE GEN
M.M
IC502
CN504
UNREG
CUE+REV
CAP PULSE
TF4
PAUSE VR
SV 5V
TAPE END
CAP Vcc
REG GND
CAP ON
DRUM ON
CAP CW/CCW
LP/SP
ATF LOCK
SEL 2
SEL 1
VA PB MODE
DSPDA M
SW P ADJ
DRUM ERROR
CAP ERROR
C FG
SYSTEM SYNC
D FG
UNREG GND
Q503 DTA114EK CUE+REV SW
Q507 2SA812 DRUM SPEED CORRECT
Q508 2SA812 CAPSTAN SPEED CORRECT
Q504 2SC1623 CURRENT MIRROR
Q506 2SC1623 DRUM SPEED CORRECT
Q509 2SC1623 CAPSTAN SPEED CORRECT
Q511,513,514 DTC144EK SP/LP SW
Q515 DTC144EK CUE+REV SW
IC502 CX20035 DRUM&CAPSTAN MAIN SERVO
Q517 DTC144EK SWITCH
TO VI-7 BOARD CN101
RS-5 BOARD
CN513 (ORG)
S/S 5V
COUNTER LED CONT
REEL TA
REEL TB
REG GND
REEL S
CN514 (ORG)
TAPE LED (A)
L M CONT (CW)
L M CONT (CCW)
LOAD SW COM
MODE SW COM
MODE SW K0
MODE SW K1
MODE SW K2
MOTOR POWER
MOTOR GND
CONT M (CCW)
CONT M (CW)
Q607 2SC1623 REEL S IN
Q606 2SC1623 REEL TB IN
Q605 2SC1623 REEL TA IN
PH603 NJL5141E REEL SENSOR S
PH602 NJL5141E REEL SENSOR TB
PH601 NJL5141E REEL SENSOR TA
Q604 2SC1623 SW
Q603 2SC1623 SW
Q602 2SC1623 SW
Q601 2SC1623 SW
IC502 MB3763PF LOAD. M DRIVE
IC501 MB376 CONT. M D
SV-14 BOARD
Q518 DTC144EK SWITCH
Q519 DTA144EK SWITCH
Q508 2SC1623 TF4 AMP
Q510 2SA812 FREQUENCY LOCK
Q509 2SC1623 BUFFER
Q516 2SA812 FREQUENCY LOCK
Q512 2SC1623 DC BIAS SW
Q511 2SA812
IC501 CX20114 DRUM MOTOR DRIVE
Q504 NJL7141E TAPE END SENSOR
CW/CCW
1B CINTROL
OVER LOAD DET
EMF DET
EMF MIX
STARTER
IRAKE
POWER OFF
CN509
CN512 (WHT)
SEL 1
SEL 2
ATF LOCK
GND
Q513 DTC144EK CAP CW/CCW SW
120° LOGIC
HE POWER
TP502
TP503
TP501
TP505
Q517 DTA144EK CAPSTAN PULSE SW
IC504 μPC35862 CAPSTAN ERROR AMP, CAPSTAN DC BIAS
IC505 TC4066BF CUE/REV SW, SP/LP SW
D506 1S 2835
Q503 2SC1623 PROTECT
IC502 CX20031 CAPSTAN MOTOR DRIVE

nts identified by shading and mark
l for safety. Replace only with
specified.

When indicating parts by reference number, please include the board name.

SERVO/MECHANISM CONTROL



RS-5BOARD
CN513 (ORG)
S/S 5V
COUNTER LED CONT
REEL TA
REEL TB
REG GND
REEL S
CN514 (ORG)
TAPE LED (A)
L M CONT (CW)
L M CONT (CCW)
LOAD SW COM
MODE SW COM
MODE SW KO
MODE SW K1
MODE SW K2
MOTOR POWER
MOTOR GND
CONT M (CCW)
CONT M (CW)
PH603 NJL5141E REEL SENSOR S
PH602 NJL5141E REEL SENSOR TB
PH601 NJL5141E REEL SENSOR TA
Q607 2SC1623 REEL S IN
Q606 2SC1623 REEL TB IN
Q605 2SC1623 REEL TA IN
Q604 2SC1623 SW
Q603 2SC1623 SW
Q602 2SC1623 SW
Q601 2SC1623 SW
IC502 MB3763PF LOAD. M. DRIVE
IC501 MB3763PS CONT. M. DRIVE
D501-503 1S2835
no mark : REC mode
( ) : LOADING mode
( ) : UNLOADING mode
CN517 (ORG)
CONT M CW
CONT M CCW
MODE SW C
MODE SW B
MODE SW A
MODE SW COM
LOAD SW COM
LOAD SW C
LOAD SW B
LOAD SW A
CN516 (WHT)
LOAD M CW
LOAD M CCW
CN515 (BLK)
TAPE LED (K)
TAPE LED (A)
MS-4BOARD
CN905 (WHT)
M903 CONTROL MOTOR
MODE SWITCH
M901 LOADING MOTOR
CW
CCW
LD-1BOARD
CN903
D901 GL450S
LS-9BOARD
CN904 (BLK)
LOADING SWITCH
SV-14BOARD
Q518 DTC144EK SWITCH
Q519 DTA144EK SWITCH
Q508 2SC1623 TF4 AMP
Q510 2SA812 FREQUENCY LOCK
Q509 2SC1623 BUFFER
Q516 2SA812 FREQUENCY LOCK
Q512 2SC1623 DC BIAS SW
Q511 2SA812
Q504 NJL7141E TAPE END SENSOR
IC501 CX20114 DRUM MOTOR DRIVE
Q501 2SA1385 CAPSTAN PWM DRIVE
Q502 2SA1385 DRUM PWM DRIVE
D501, 502 E10QS03
CN510 (RED)
DRUM (U)
DRUM (V)
COM
DRUM (W)
CW / CCW
IB CONTROL
BRAKE
OVER LOAD DET
POWER OFF
EMF MIX
EMF DET
STARTER
OSC
STILL
SW P
FG, PG
D FG A
D PG
D COM
GND
MECHA DECK GND
DRUM MOTOR
DRUM
Q515 DTC144EK PROTECT
Q513 DTC144EK CAP CW/CCW SW
Q514 2SA812 PROTECT
no mark : REC mode
( ) : CUE + REV mode
( ) : TAPE END mode
[ ] : LP, REC mode
[ ] : LP, CUE + REV mode
Marked * is not able to measure the voltage of its position.
120° LOGIC
HE POWER
COMP
IB CONT
CAP LP
CAP SP
TP502
TP503
TP501
TP505
TP507
CN511 (WHT)
CAP (U)
CAP (V)
CAP (W)
UNREG GND
VHE (+)
VHE (-)
UHE (+)
UHE (-)
WHE (+)
WHE (-)
VE
S/S 5V
CAP FG (+)
GND
CAP FG (-)
CAPSTAN FG
CAPSTAN MOTOR M902
CAPSTAN MOTOR
Q517 DTA144EK CAPSTAN PULSE SW
IC504 μPC358G2 CAPSTAN ERROR AMP, CAPSTAN DC BIAS
IC505 TC4066BF CUE/REV SW, SP/LP SW
D506 1S2835
Q503 2SC1623 PROTECT
IC502 CX20036 CAPSTAN MOTOR DRIVE
D504 E10QS03
MC-8 BOARD (SERVO)
IC502 ② REC
IC502 ④ REC/PB
IC502 ⑥ REC/PB
IC502 ⑦ REC/PB
IC502 ⑧ REC/PB
IC502 ⑰ REC/PB
IC502 ⑱ REC/PB
IC502 ⑲ REC
IC502 ㉓ REC/PB
MC-8BOARD (SYSTEM CONTROL)
IC601 ⑫, ⑬ REC/PB
IC601 ⑭ PB
IC601 ⑮ PB
IC601 ㉔ REC/PB
IC601 ㉝ REC/PB
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
A
B
C
D
E
F
G
H
I
J

MODE CONTROL

SK-8 (MODE CONTROL), DS-8 (POWER SUPPLY

– Ref. No. DS-8 BOARD : 1000 series, SK-8 BOARD : 5000 ser

1 2 3 4

A

B

C

D

E

F

G

H

I

J

Q, IC

601
602

608,609
60

612

IC604 6

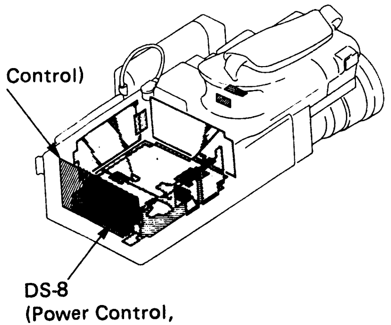
IC
611,IC60
610,IC6

06

IC602

605
604

Q,IC


SK-8
(Mode Control)
DS-8
(Power Control,
Communication Control)

Note:

- ⊗ : Through hole.
- ▨ : pattern from the side which enables seeing.
- ░ : B+ pattern from the side which enables seeing.
- ▒ : pattern of the rear side.

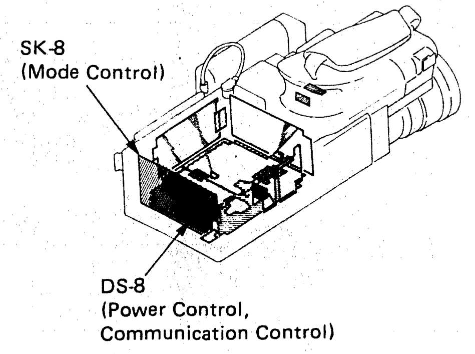
SK-8 (MODE CONTROL), DS-8 (POWER SUPPLY CONTROL, COMMUNICATION CONTROL CPU) PRINTED WIRING BOARDS

– Ref. No. DS-8 BOARD : 1000 series, SK-8 BOARD : 5000 series –

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

A B C D E F G H I J

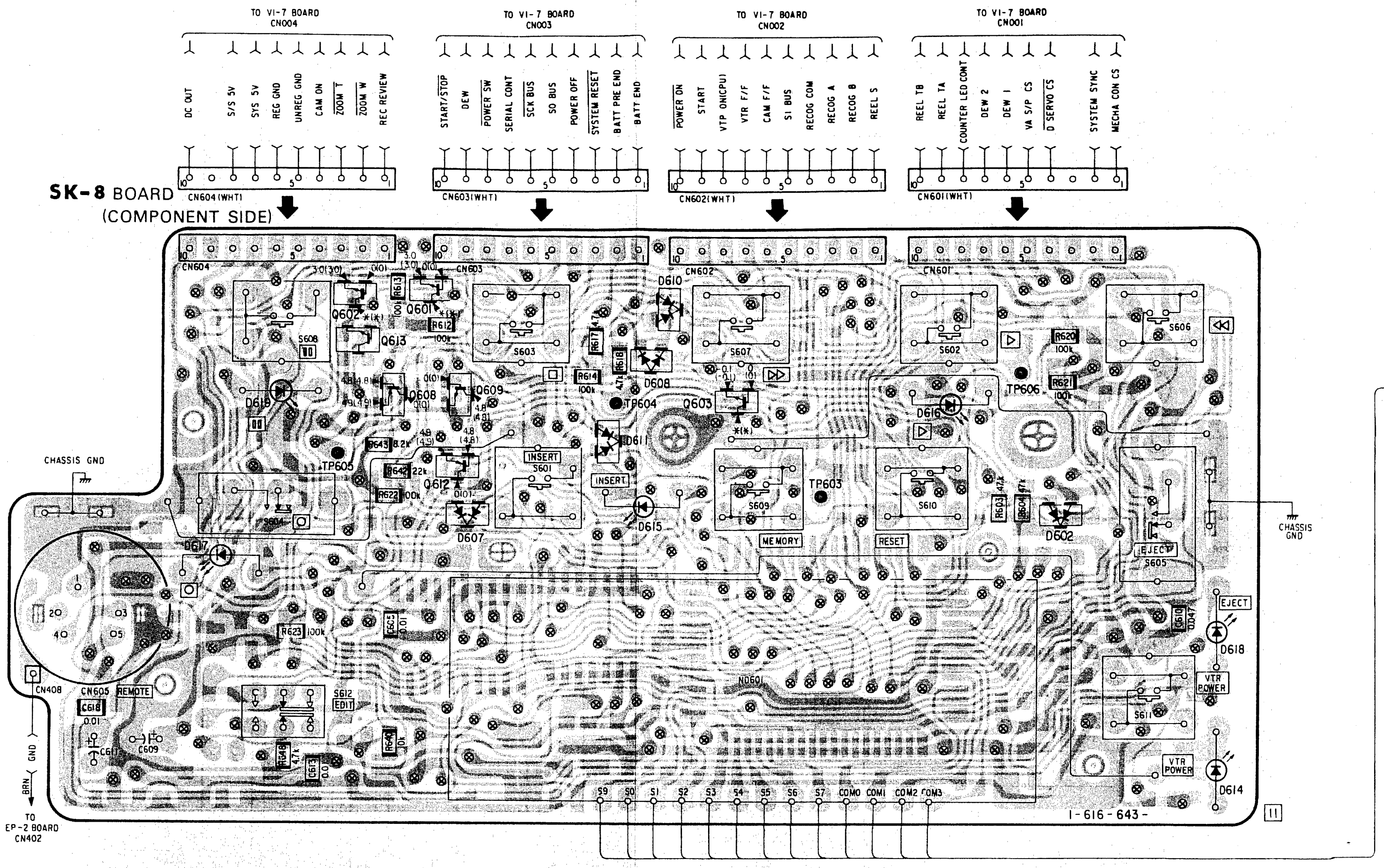
Q,IC	D	TP
601		
602		
	610	
	608	606
		604
608,609	619	
603	616	
		605
	611	
612		
		603
	615	
	607 602	
	617	
	618	
	614	
IC604 606	601	
	620	
607		
IC601		
611,IC603	621	
610,IC605		
	622 613	
	605	
Q614		603
	606	
		605
IC602		
		604
		606
	609	
	604,612	
605	603	
604		
Q,IC	D	TP

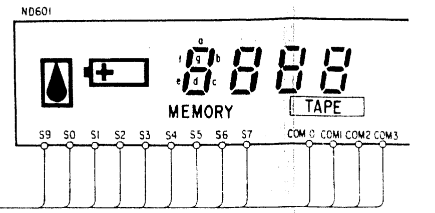

SK-8
(Mode Control)
DS-8
(Power Control,
Communication Control)

Note:

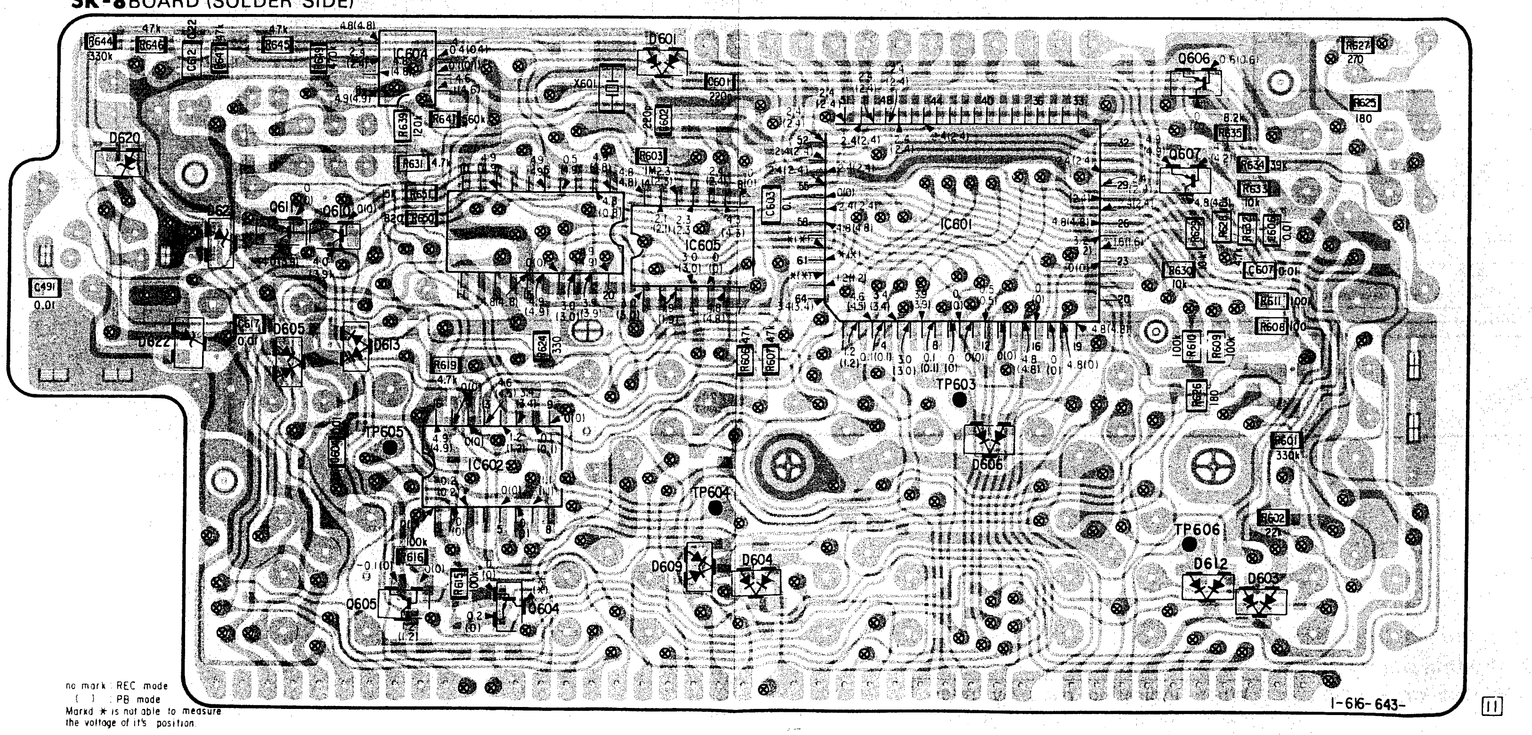
- ⊗ : Through hole.
- ▨ : pattern from the side which enables seeing.
- ▨ : B+ pattern from the side which enables seeing.
- ▨ : pattern of the rear side.

SK-8 BOARD (COMPONENT SIDE)


TO VI-7 BOARD CN004
DC OUT
S/S 5V
SYS 5V
REG GND
UNREG GND
CAM ON
ZOOM T
ZOOM W
REC REVIEW
CN604(WHT)
TO VI-7 BOARD CN003
START/STOP
DEW
POWER SW
SERIAL CONT
SCK BUS
SO BUS
POWER OFF
SYSTEM RESET
BATT PRE END
BATT END
CN603(WHT)
TO VI-7 BOARD CN002
POWER ON
START
VTP ON(CPU)
VTR F/F
CAM F/F
SI BUS
RECOG COM
RECOG A
RECOG B
REEL S
CN602(WHT)
TO VI-7 BOARD CN001
REEL TB
REEL TA
COUNTER LED CONT
DEW 2
DEW 1
VA S/P CS
D SERVO CS
SYSTEM SYNC
MECHA CON CS
CN601(WHT)
CHASSIS GND
CN408
GND
BRN
TO EP-2 BOARD CN402
CN605
REMOTE
S612
EDIT
S608
S603
S607
S602
S606
S601
INSERT
S609
MEMORY
S610
RESET
S605
EJECT
S611
VTR POWER
D618
D614
D617
TP605
TP604
TP603
TP606
ND601
S9 S0 S1 S2 S3 S4 S5 S6 S7 COM0 COM1 COM2 COM3
1-616-643-
11

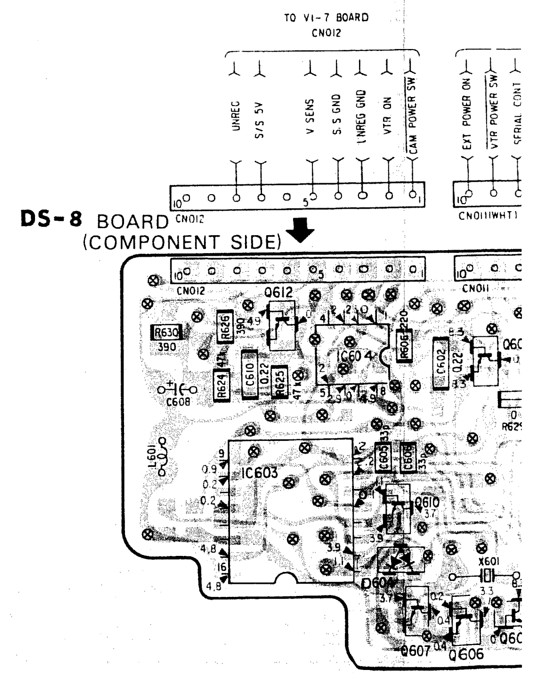

ND601
MEMORY
TAPE
S9 S0 S1 S2 S3 S4 S5 S6 S7 COM0 COM1 COM2 COM3

SK-8 BOARD (SOLDER SIDE)

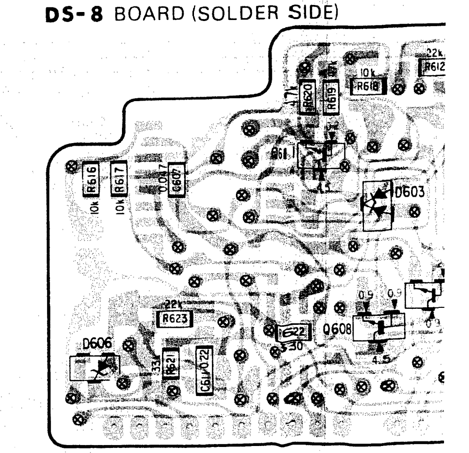

IC601
IC602
IC603
IC604
IC605
TP603
TP604
TP605
TP606
1-616-643-
11

no mark : REC mode
( ) : PB mode
Markd ★ is not able to measure the voltage of it's position.

DS-8 BOARD (COMPONENT SIDE)


TO VI-7 BOARD CN012
UNREG
S/S 5V
V SENS
S.S GND
UNREG GND
VTR ON
CAM POWER SW
EXT POWER ON
VTR POWER SW
SERIAL CONT
CN012
CN011(WHT)
Q612
IC604
IC603

DS-8 BOARD (SOLDER SIDE)

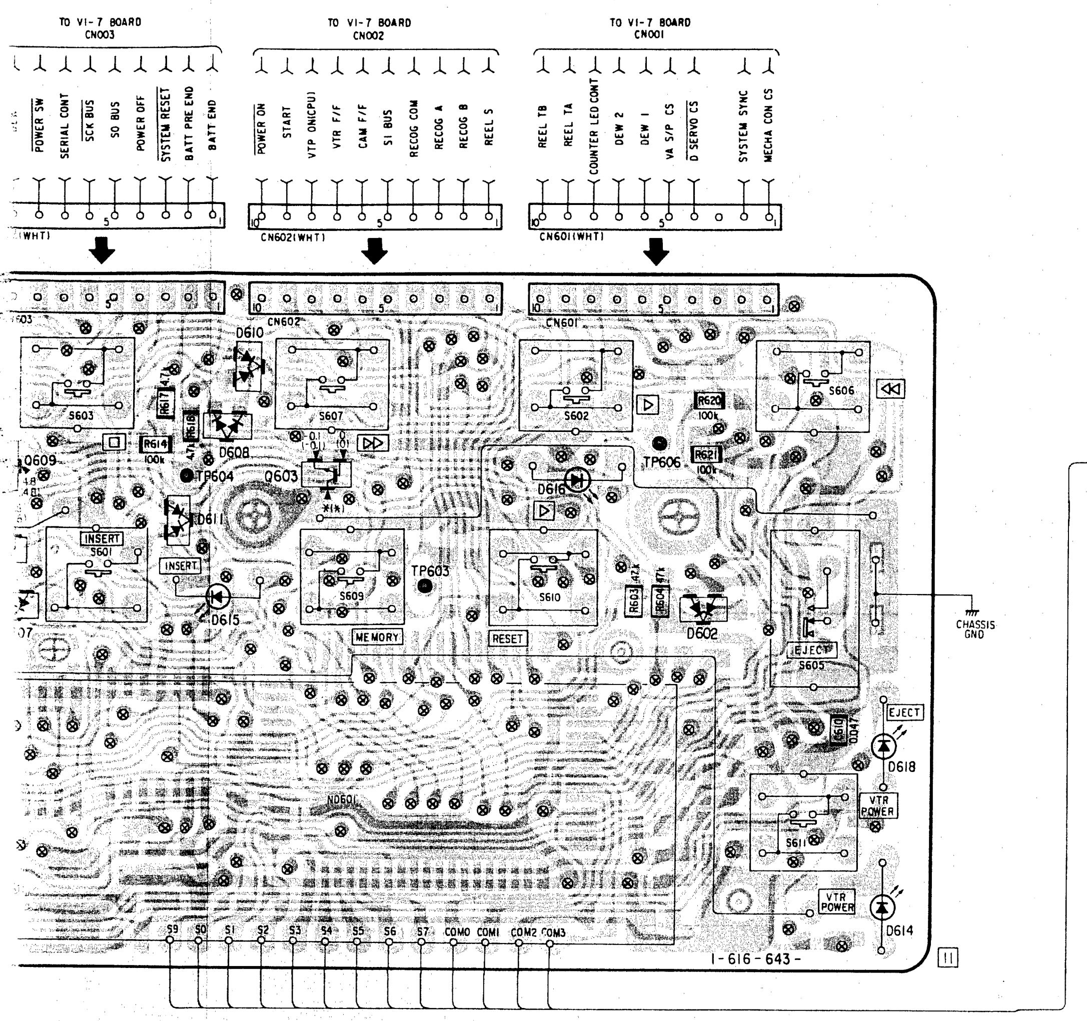


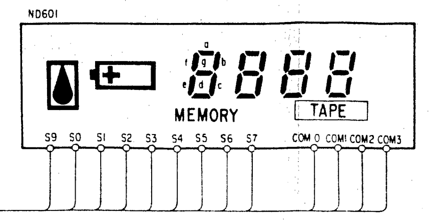
no mark : REC mode

D WIRING BOARDS

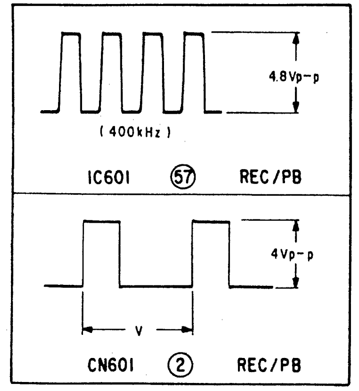
8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

A B C D E F G H I J

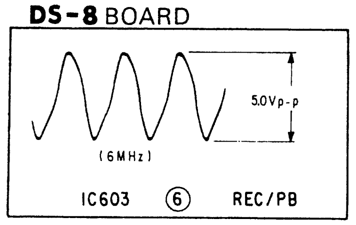

TO VI-7 BOARD
CN003
POWER SW
SERIAL CONT
SCK BUS
SO BUS
POWER OFF
SYSTEM RESET
BATT PRE END
BATT END
(WHT)
TO VI-7 BOARD
CN002
POWER ON
START
VTP ON(CPU)
VTR F/F
CAM F/F
SI BUS
RECOG COM
RECOG A
RECOG B
REEL S
CN602(WHT)
TO VI-7 BOARD
CN001
REEL TB
REEL TA
COUNTER LED CONT
DEW 2
DEW 1
VA S/P CS
D SERVO CS
SYSTEM SYNC
MECHA CON CS
CN601(WHT)
CN602
CN601
D610
D608
D611
D615
D616
D602
D618
D614
Q603
Q609
TP603
TP604
TP606
S601
S602
S603
S605
S606
S607
S609
S610
S611
INSERT
MEMORY
RESET
EJECT
VTR POWER
ND601
CHASSIS GND
S9 S0 S1 S2 S3 S4 S5 S6 S7 COM0 COM1 COM2 COM3
1-616-643-
11


ND601
8888
MEMORY
TAPE
S9 S0 S1 S2 S3 S4 S5 S6 S7 COM 0 COM1 COM2 COM3

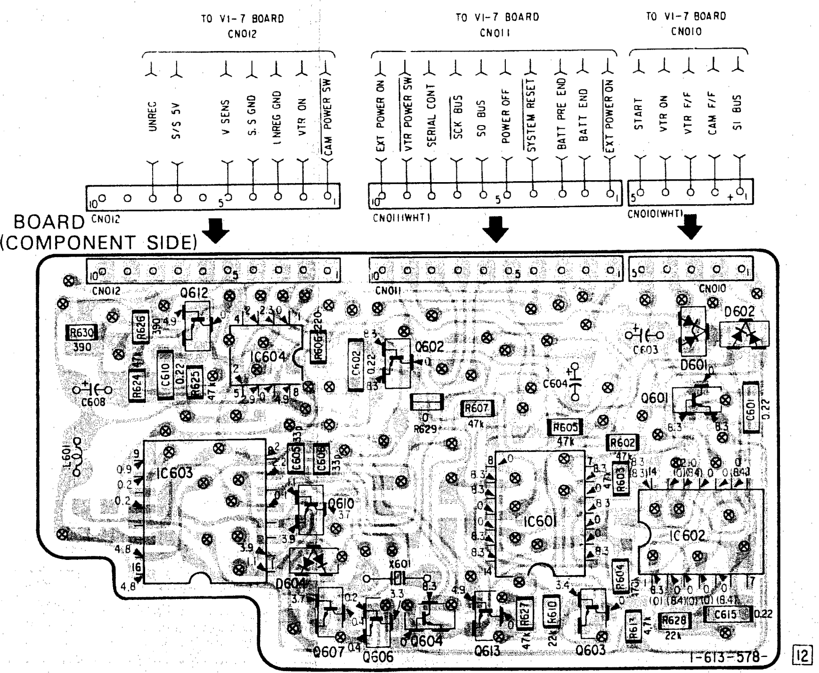
SK-8 BOARD (MODE CONTROL)



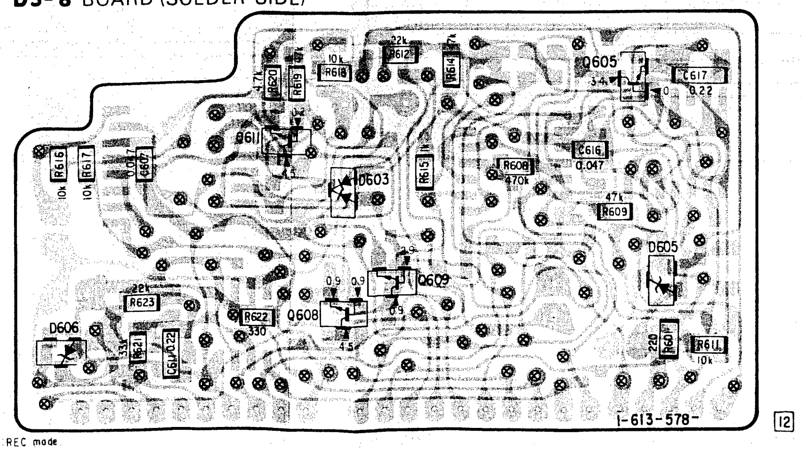
DS-8 BOARD



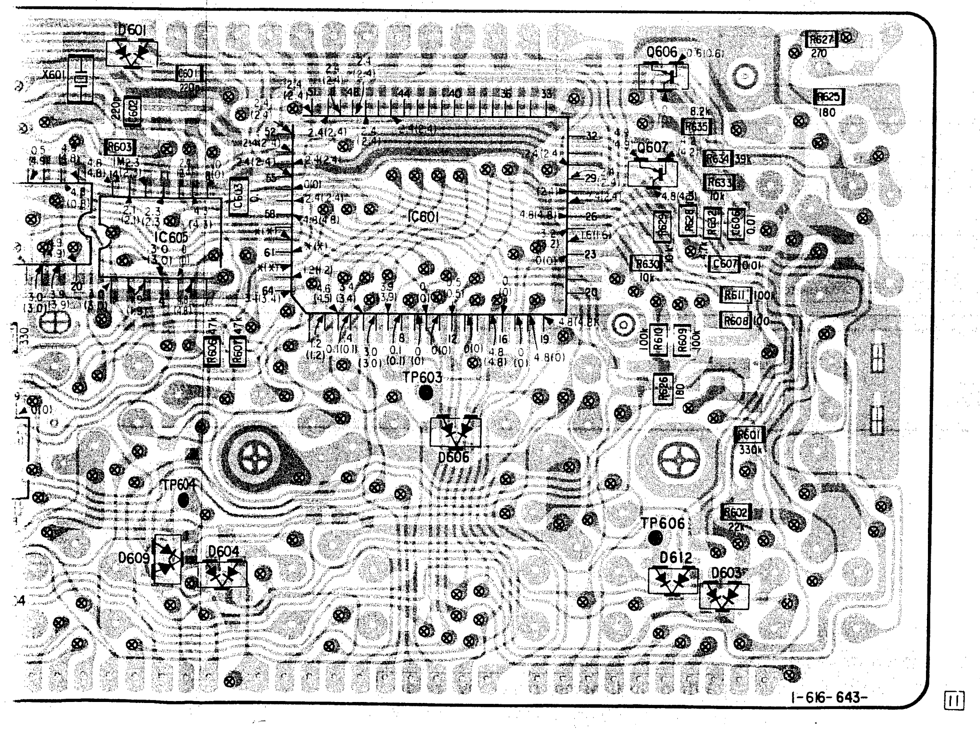
DS-8 BOARD (COMPONENT SIDE)


TO VI-7 BOARD
CN012
UNREC
S/S 5V
V SENS
S.S GND
UNREG GND
VTR ON
CAM POWER SW
TO VI-7 BOARD
CN011
EXT POWER ON
VTR POWER SW
SERIAL CONT
SCK BUS
SO BUS
POWER OFF
SYSTEM RESET
BATT PRE END
BATT END
EXT POWER ON
TO VI-7 BOARD
CN010
START
VTR ON
VTR F/F
CAM F/F
SI BUS
CN012
CN011(WHT)
CN010(WHT)
Q612
IC604
Q602
D602
D601
Q601
IC603
IC601
IC602
Q610
Q604
Q607
Q606
Q613
Q603
X601
R630 390
1-613-578-
12

DS-8 BOARD (SOLDER SIDE)


Q605
Q611
Q603
Q609
Q608
D605
D606
R616
R617
R618
R619
R620
R621
R622
R623
R609
R608
C616 0.047
C617 0.22
1-613-578-
12

no mark : REC mode


D601
Q606
Q607
IC605
IC601
X601
TP603
TP604
TP606
D606
D609
D604
D612
D603
R627 270
R625 180
R601 330k
1-616-643-
11

Q, IC	D
612	
	601,602
IC604, 602	
601	
IC603	
610, IC601	
IC602	
	604
607,604,613,603 606	
605	
611	
	603
609	605
608	
	606
Q, IC	D

Caution:

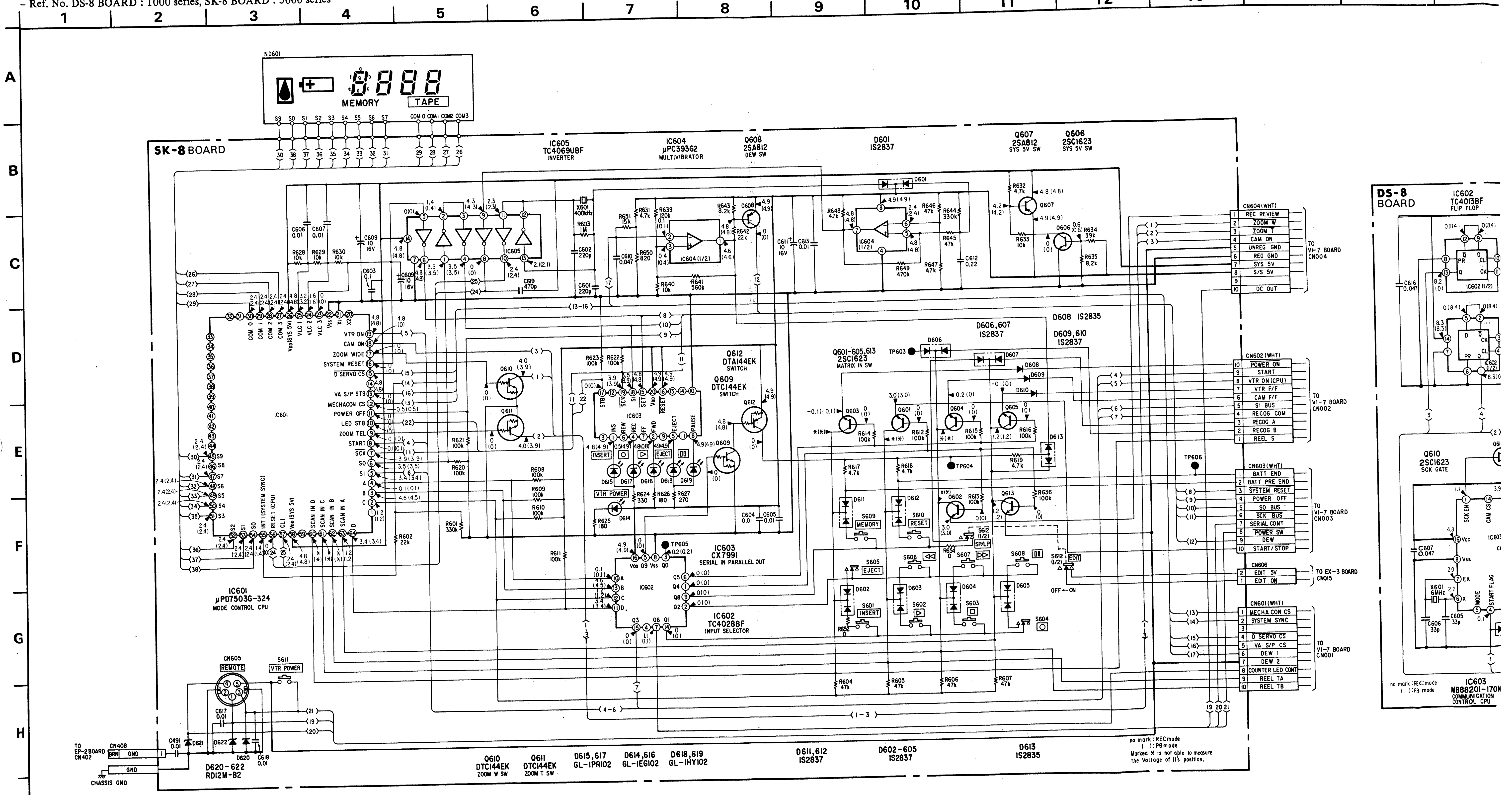
Pattern face side: (Solder Side) Parts on the pattern face side seen from the pattern face are indicated.

Parts face side: (Component Side) Parts on the parts face side seen from the part face are indicated.

When indicating parts by reference number, please include the board name.

SK-8 (MODE CONTROL), DS-8 (POWER SUPPLY CONTROL, COMMUNICATION CONTROL CPU) SCHEMATIC DIAGRAM

– Ref. No. DS-8 BOARD : 1000 series, SK-8 BOARD : 5000 series –


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
ND601
MEMORY
TAPE
S9 S0 S1 S2 S3 S4 S5 S6 S7
COM 0 COM1 COM2 COM3
SK-8 BOARD
IC605 TC4069UBF INVERTER
IC604 μPC393G2 MULTIVIBRATOR
Q608 2SA812 DEW SW
D601 1S2837
Q607 2SA812 SYS 5V SW
Q606 2SC1623 SYS 5V SW
X601 400kHz
IC601
IC601 μPD7503G-324 MODE CONTROL CPU
VTR ON
CAM ON
ZOOM WIDE
SYSTEM RESET
D SERVO CS
VA S/P STB
MECHACON CS
POWER OFF
LED STB
ZOOM TEL
START
SCK
SO
SI
Q610
Q611
Q612 DTA144EK SWITCH
Q609 DTC144EK SWITCH
IC603
INSERT
EJECT
VTR POWER
D615 D617 D616 D618 D619
D614
TP605
IC603 CX7991 SERIAL IN PARALLEL OUT
IC602
IC602 TC4028BF INPUT SELECTOR
Q601-605,613 2SC1623 MATRIX IN SW
TP603
D606
D607
D608
D609
D610
D613
D606,607 1S2837
D608 1S2835
D609,610 1S2837
TP604
TP606
S609 MEMORY
S610 RESET
S612 SP/LP
S605 EJECT
S606
S607
S608
S612 EDIT
OFF←ON
S601 INSERT
S602
S603
S604
CN604(WHT)
1 REC REVIEW
2 ZOOM W
3 ZOOM T
4 CAM ON
5 UNREG GND
6 REG GND
7 SYS 5V
8 S/S 5V
9
10 DC OUT
TO VI-7 BOARD CN004
CN602(WHT)
10 POWER ON
9 START
8 VTR ON(CPU)
7 VTR F/F
6 CAM F/F
5 SI BUS
4 RECOG COM
3 RECOG A
2 RECOG B
1 REEL S
TO VI-7 BOARD CN002
CN603(WHT)
1 BATT END
2 BATT PRE END
3 SYSTEM RESET
4 POWER OFF
5 SO BUS
6 SCK BUS
7 SERIAL CONT
8 POWER SW
9 DEW
10 START/STOP
TO VI-7 BOARD CN003
CN606
2 EDIT 5V
1 EDIT ON
TO EX-3 BOARD CN015
CN601(WHT)
1 MECHA CON CS
2 SYSTEM SYNC
3
4 D SERVO CS
5 VA S/P CS
6 DEW 1
7 DEW 2
8 COUNTER LED CONT
9 REEL TA
10 REEL TB
TO VI-7 BOARD CN001
CN605 REMOTE
S611 VTR POWER
TO EP-2 BOARD CN402
CN408
BRN GND
GND
CHASSIS GND
D620-622 RD12M-B2
Q610 DTC144EK ZOOM W SW
Q611 DTC144EK ZOOM T SW
D615,617 GL-1PR102
D614,616 GL-1EG102
D618,619 GL-1HY102
D611,612 1S2837
D602-605 1S2837
D613 1S2835
no mark: REC mode
( ): PB mode
Marked ✻ is not able to measure the Voltage of it's position.
DS-8 BOARD
IC602 TC4013BF FLIP FLOP
Q610 2SC1623 SCK GATE
X601 6MHz
IC603 MB88201-170M COMMUNICATION CONTROL CPU
no mark: REC mode
( ): PB mode

Note:

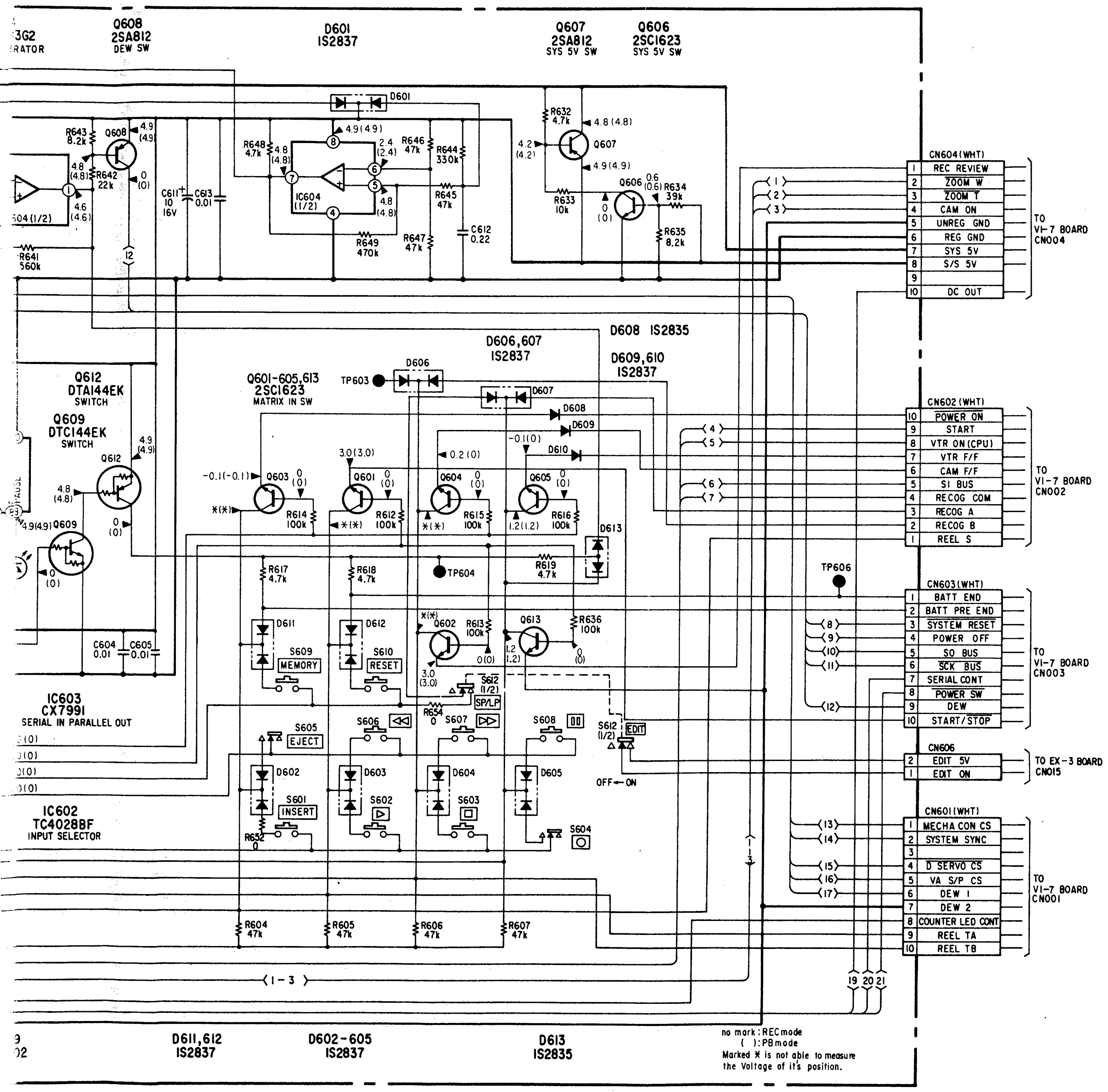
- All resistors are in ohms, 1/10W unless otherwise noted.
- All capacitors are in μF (p:pF) unless otherwise noted. 50V or less are not indicated except for electrolytic capacitors.
- All variable and semi-fixed resistors have characteristic curve B, unless otherwise noted.
- ☐ : panel designation.

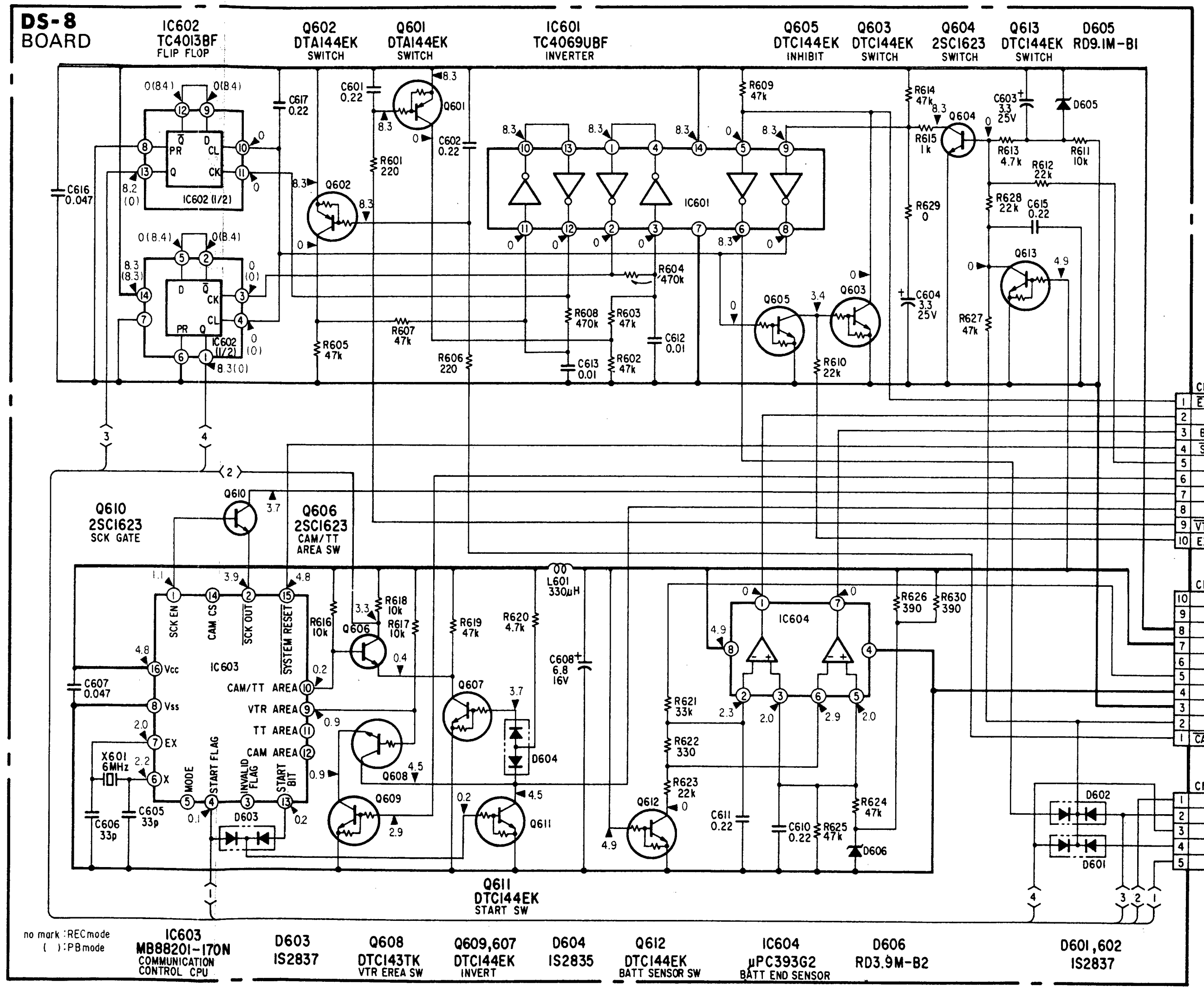
- ——— : B+ bus.
- ☐ : adjustment for repair.
- Voltage and waveform measuring conditions:
  - (1) Sample object: Pattern box colour bars.
  - (2) Voltage values: Relative to ground, measured with a DC digital multimeter (impedance 10M-ohm or more).

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22


Q608 2SA812 DEW SW
D601 IS2837
Q607 2SA812 SYS 5V SW
Q606 2SC1623 SYS 5V SW
IC604 (1/2)
CN604 (WHT)
1 REC REVIEW
2 ZOOM W
3 ZOOM T
4 CAM ON
5 UNREG GND
6 REG GND
7 SYS 5V
8 S/S 5V
9
10 DC OUT
TO VI-7 BOARD CN004
Q612 DTA144EK SWITCH
Q609 DTC144EK SWITCH
Q601-605,613 2SC1623 MATRIX IN SW
D606,607 IS2837
D608 IS2835
D609,610 IS2837
TP603
TP604
TP606
CN602 (WHT)
10 POWER ON
9 START
8 VTR ON (CPU)
7 VTR F/F
6 CAM F/F
5 SI BUS
4 RECOG COM
3 RECOG A
2 RECOG B
1 REEL S
TO VI-7 BOARD CN002
CN603 (WHT)
1 BATT END
2 BATT PRE END
3 SYSTEM RESET
4 POWER OFF
5 SO BUS
6 SCK BUS
7 SERIAL CONT
8 POWER SW
9 DEW
10 START/STOP
TO VI-7 BOARD CN003
S609 MEMORY
S610 RESET
S612 (1/2) SP/LP
S605 EJECT
S606
S607
S608
S612 (1/2) EDIT
OFF ↔ ON
S601 INSERT
S602
S603
S604
CN606
1 EDIT 5V
2 EDIT ON
TO EX-3 BOARD CN015
CN601 (WHT)
1 MECHA CON CS
2 SYSTEM SYNC
3
4 D SERVO CS
5 VA S/P CS
6 DEW 1
7 DEW 2
8 COUNTER LED CONT
9 REEL TA
10 REEL TB
TO VI-7 BOARD CN001
IC603 CX7991 SERIAL IN PARALLEL OUT
IC602 TC4028BF INPUT SELECTOR
D611,612 IS2837
D602-605 IS2837
D613 IS2835
no mark : RECmode
( ) : PBmode
Marked ※ is not able to measure the Voltage of it's position.


DS-8 BOARD
IC602 TC4013BF FLIP FLOP
Q602 DTA144EK SWITCH
Q601 DTA144EK SWITCH
IC601 TC4069UBF INVERTER
Q605 DTC144EK INHIBIT
Q603 DTC144EK SWITCH
Q604 2SC1623 SWITCH
Q613 DTC144EK SWITCH
D605 RD9.1M-B1
Q610 2SC1623 SCK GATE
Q606 2SC1623 CAM/TT AREA SW
IC603
IC604
CN011 (WHT)
1 EXT POWER ON
2 BATT END
3 BATT PRE END
4 SYSTEM RESET
5 POWER OFF
6 SO BUS
7 SCK BUS
8 SERIAL CONT
9 VTR POWER SW
10 EXT POWER ON
TO VI-7 BOARD CN011
CN012 (WHT)
8 UNREG
7 S/S 5V
5 V SENS
4 S/S GND
3 UNREG GND
2 VTR ON
1 CAM POWER SW
TO VI-7 BOARD CN012
CN010 (WHT)
1 SI BUS
2 CAM F/F
3 VTR F/F
4 VTR ON
5 START
TO VI-7 BOARD CN010
Q611 DTC144EK START SW
no mark : RECmode
( ) : PBmode
IC603 MB88201-170N COMMUNICATION CONTROL CPU
D603 IS2837
Q608 DTC143TK VTR EREA SW
Q609,607 DTC144EK INVERT
D604 IS2835
Q612 DTC144EK BATT SENSOR SW
IC604 μPC393G2 BATT END SENSOR
D606 RD3.9M-B2
D601,602 IS2837

A
B
C
D
E
F
G
H
I
J

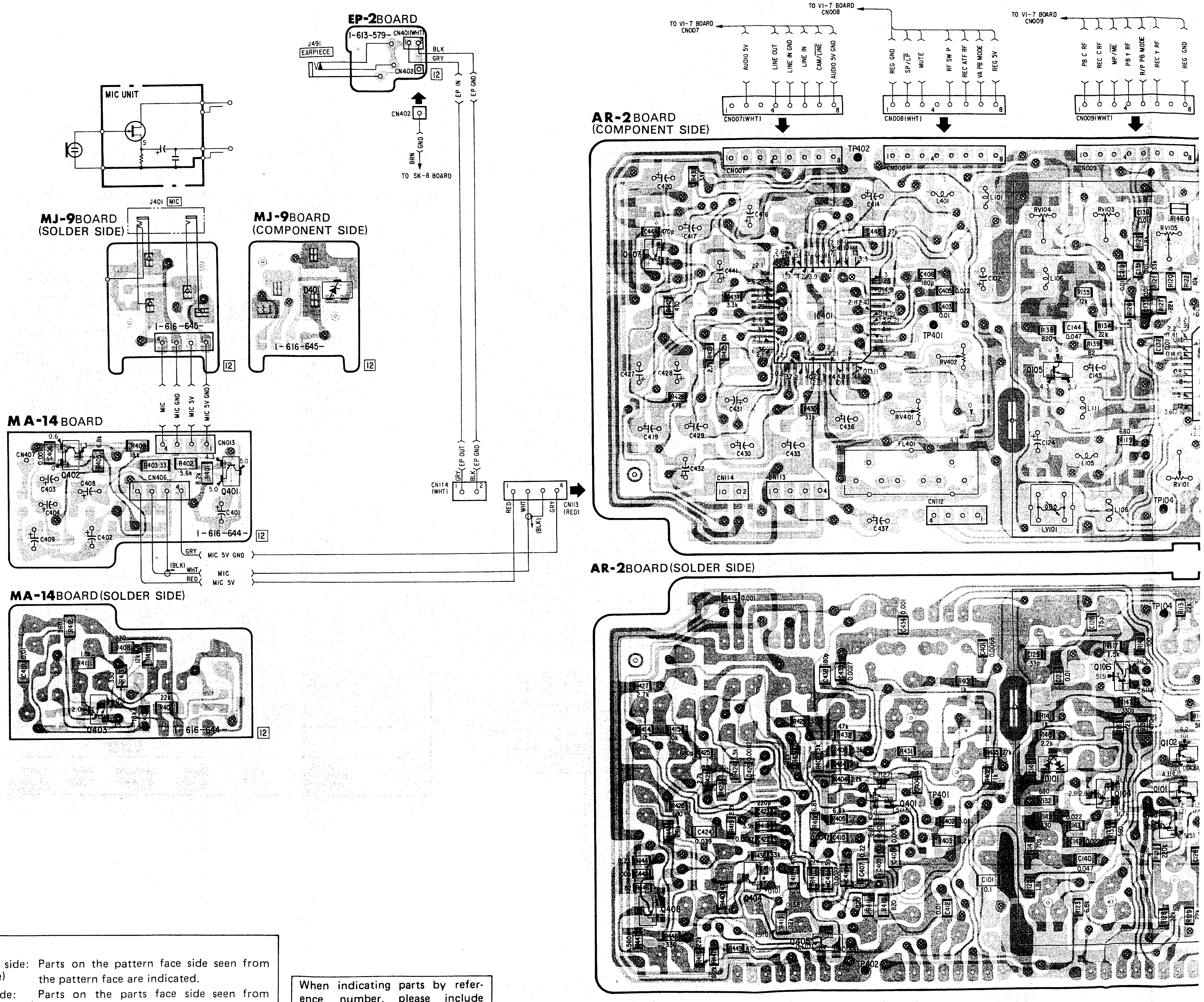
ured with
mpedance

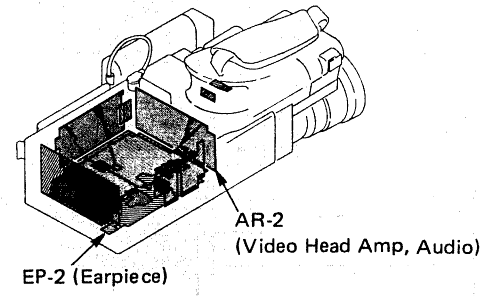
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

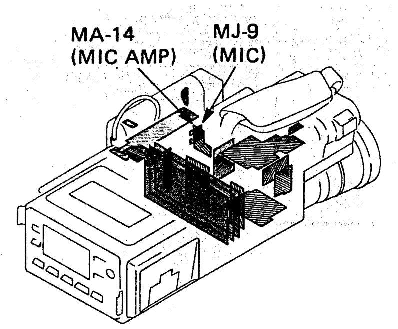
When indicating parts by reference number, please include the board name.

MA-14 (MIC AMP), MJ-9 (MIC INPUT), AR-2 (AUDIO PROCESS, VIDEO HEAD AMP), EP-2 (EARPIECE OUTPUT) PRINTED WIRING BOARDS

– Ref. No. AR-2, EP-2 BOARD : 5000 series, MA-14, MJ-8 BOARD : 7000 series –


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
EP-2 BOARD
1-613-579-
CN401(WHT)
J491
EARPIECE
CN402
BLK
GRY
EP IN
EP GND
BRN
GND
TO SK-8 BOARD
MIC UNIT
J401 MIC
MJ-9 BOARD (SOLDER SIDE)
MJ-9 BOARD (COMPONENT SIDE)
1-616-645-
MIC
MIC GND
MIC 5V
MIC 5V GND
MA-14 BOARD
CN407
CN406
CN013
Q401
Q402
1-616-644-
GRY
MIC 5V GND
(BLK)
WHT
RED
MIC
MIC 5V
MA-14 BOARD (SOLDER SIDE)
Q403
616-644-
CN114 (WHT)
CN113 (RED)
EP OUT
EP GND
TO VI-7 BOARD CN007
TO VI-7 BOARD CN008
TO VI-7 BOARD CN009
AUDIO 5V
LINE OUT
LINE IN GND
LINE IN
CAM/LINE
AUDIO 5V GND
REG GND
SP/LP
MUTE
RF SW P
REC ATF RF
VA PB MODE
REG 5V
PB C RF
REC C RF
MP/ME
PB Y RF
R/P PB MODE
REC Y RF
REG GND
CN007(WHT)
CN008(WHT)
CN009(WHT)
AR-2 BOARD (COMPONENT SIDE)
AR-2 BOARD (SOLDER SIDE)
TP402
TP401
TP104
IC401
FL401
L401
L101
RV101
RV103
RV104
RV105
RV401
RV402
Q101
Q102
Q105
Q106
Q401
Q408
CN112
LV101
12


AR-2
(Video Head Amp, Audio)
EP-2 (Earpiece)


MA-14
(MIC AMP)
MJ-9
(MIC)

Note:
- ⊗ : Through hole.
- ▨ : pattern from the side which enables seeing.
- ░ : B+ pattern from the side which enables seeing.
- ░ : pattern of the rear side.

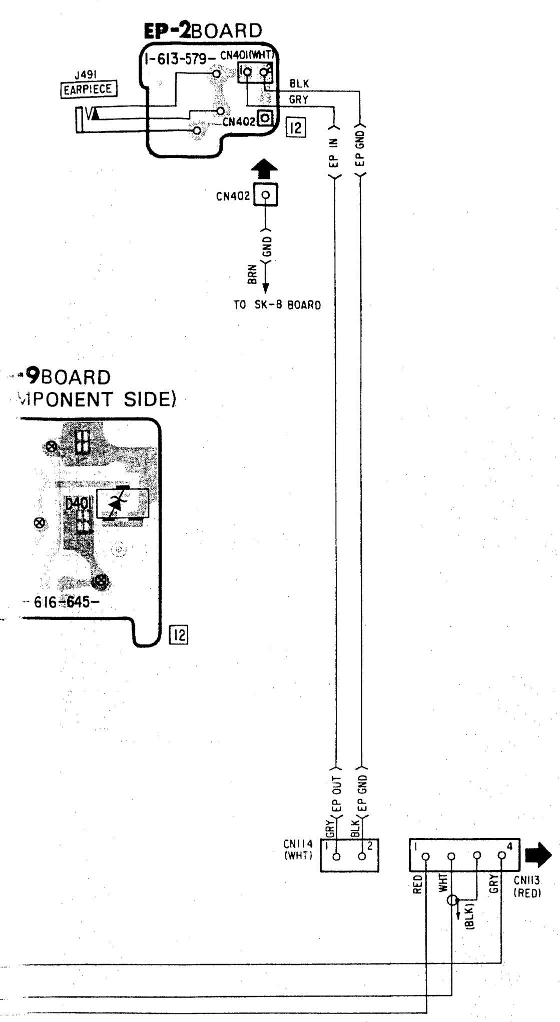
Caution:	
Pattern face side: (Solder Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the part face are indicated.

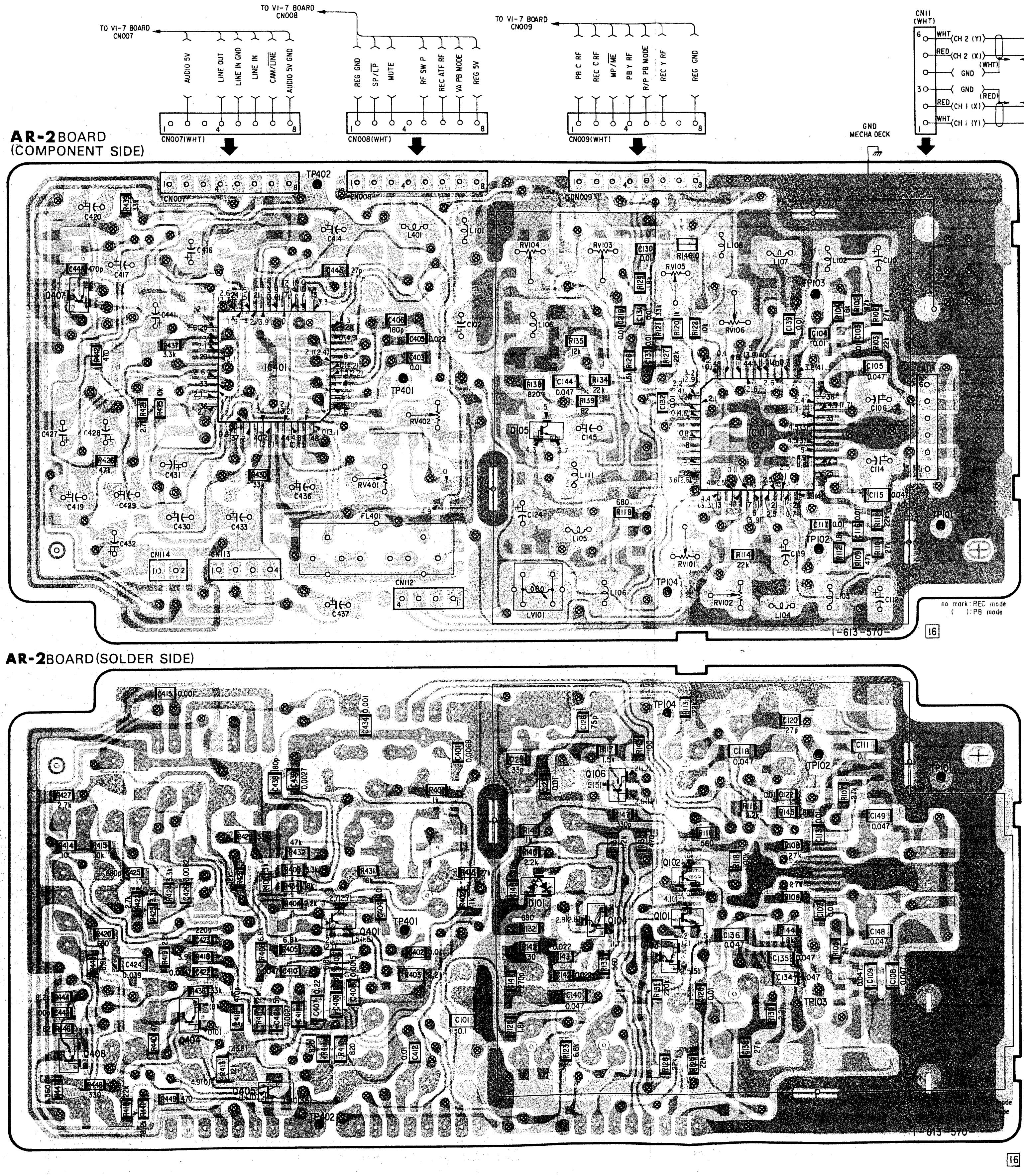
When indicating parts by reference number, please include the board name.

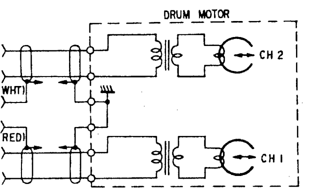
OUTPUT) PRINTED WIRING BOARDS

8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23

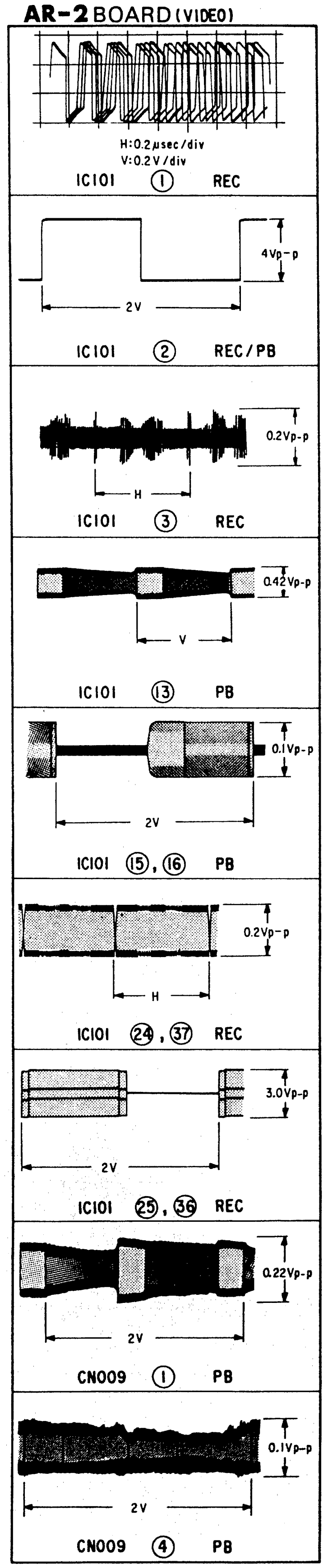
A B C D E F G H I J


EP-2BOARD
1-613-579-
CN401(WHT)
J491 EARPIECE
BLK
GRY
CN402
CN402
GND
BRN
TO SK-8 BOARD
EP IN
EP GND
-9BOARD
MPONENT SIDE)
Q407
D401
616-645-
12
CN114 (WHT)
GRY
BLK
EP OUT
EP GND
CN113 (RED)
RED
WHT
(BLK)
GRY


TO VI-7 BOARD CN007
TO VI-7 BOARD CN008
TO VI-7 BOARD CN009
AUDIO 5V
LINE OUT
LINE IN GND
LINE IN
CAM/LINE
AUDIO 5V GND
REG GND
SP/LP
MUTE
RF SW P
REC ATF RF
VA PB MODE
REG 5V
PB C RF
REC C RF
MP/ME
PB Y RF
R/P PB MODE
REC Y RF
REG GND
CN007(WHT)
CN008(WHT)
CN009(WHT)
CN11 (WHT)
GND MECHA DECK
AR-2BOARD (COMPONENT SIDE)
AR-2BOARD(SOLDER SIDE)
IC401
IC101
TP401
TP402
TP101
TP102
TP103
TP104
RV101
RV102
RV103
RV104
RV105
RV106
RV401
RV402
LV101
FL401
CN112
CN113
CN114
no mark: REC mode
( ): PB mode
1-613-570-
16


DRUM MOTOR
WHT CH 2 (Y)
RED CH 2 (X)
(WHT)
GND
GND
(RED)
RED CH 1 (X)
WHT CH 1 (Y)
CH 2
CH 1

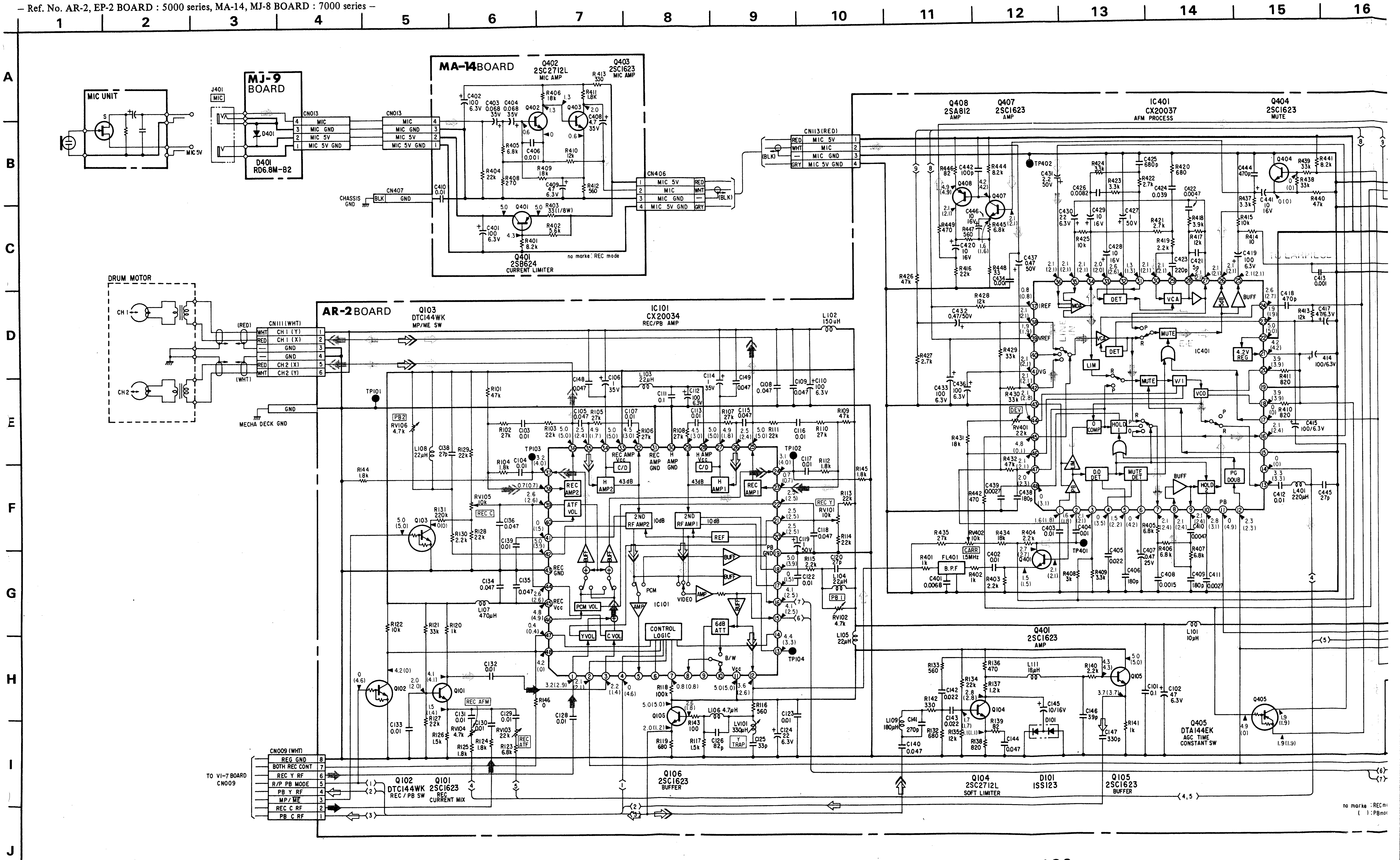
Q · IC	D	ADJ	TP
			402
		RV104,RV103	
		RV105	103
407		RV106	
IC401			
			401
105, IC101		RV402	
			101
			102
		RV101	
			104
		LV101,RV102	
			104
			102 101
106			
102	101		
401 104,101			401
103			
404			
408 405			
			402
Q · IC	D	ADJ	TP

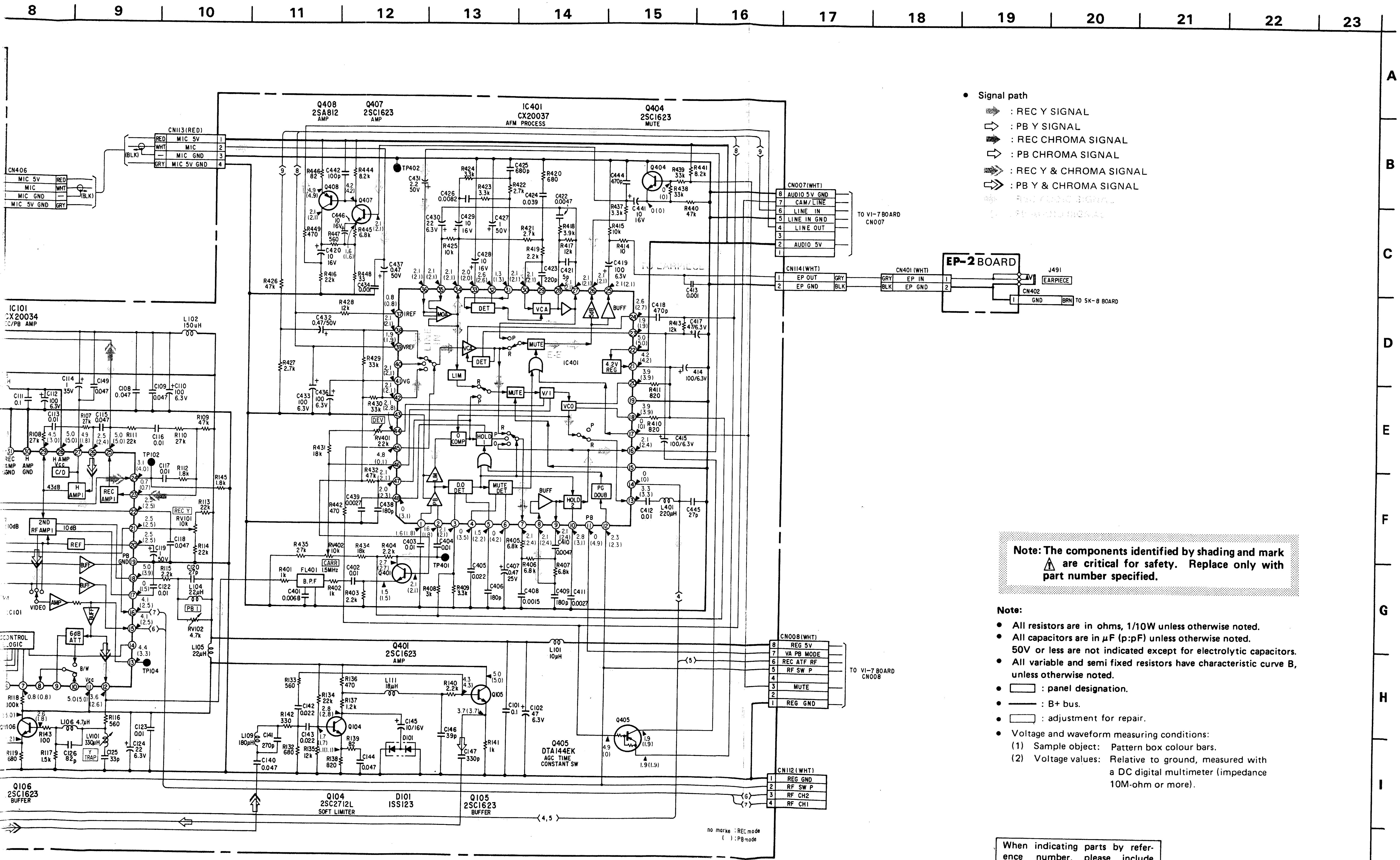


When indicating parts by reference number, please include the board name.

MA-14 (MIC AMP), MJ-9 (MIC INPUT), AR-2 (AUDIO PROCESS, VIDEO HEAD AMP), EP-2 (EARPIECE OUTPUT) SCHEMATIC DIAGRAM

– Ref. No. AR-2, EP-2 BOARD : 5000 series, MA-14, MJ-8 BOARD : 7000 series –


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
A B C D E F G H I J
MIC UNIT
MIC 5V
J401
MIC
MJ-9 BOARD
D401
D401 RD6.8M-B2
CN013
MIC
MIC GND
MIC 5V
MIC 5V GND
CHASSIS GND
CN407
BLK
GND
MA-14 BOARD
Q402 2SC2712L MIC AMP
Q403 2SC1623 MIC AMP
Q401 2SB624 CURRENT LIMITER
no marke : REC mode
CN406
RED
WHT
GRY
BLK
CN113 (RED)
DRUM MOTOR
CH1
CH2
CN111 (WHT)
CH1 (Y)
CH1 (X)
GND
CH2 (X)
CH2 (Y)
MECHA DECK GND
AR-2 BOARD
Q103 DTC144WK MP/ME SW
IC101 CX20034 REC/PB AMP
TP101
TP102
TP103
TP104
REC AMP2
ATF VOL
REC AMP Vcc
H AMP2
H AMP1
H AMP Vcc
REC AMP1
2ND RF AMP2
2ND RF AMP1
REF
BUFF
AMP
PCM
PCM VOL
VIDEO
Y VOL
C VOL
CONTROL LOGIC
6dB ATT
B/W
REC GND
REC Vcc
PB GND
REC AFM
REC C
REC Y
PB 1
PB2
REC ATF
Y TRAP
CN009 (WHT)
REG GND
BOTH REC CONT
REC Y RF
R/P PB MODE
PB Y RF
MP/ME
REC C RF
PB C RF
TO VI-7 BOARD CN009
Q102 DTC144WK REC / PB SW
Q101 2SC1623 REC CURRENT MIX
Q106 2SC1623 BUFFER
Q408 2SA812 AMP
Q407 2SC1623 AMP
IC401 CX20037 AFM PROCESS
Q404 2SC1623 MUTE
TP402
TP401
IREF
VREF
VG
MOD
DET
VCA
LIM
MUTE
V/I
VCO
COMP
HOLD
DEV
CARR
B.P.F
FL401 1.5MHz
4.2V REG
BUFF
PG DOUB
0.0 DET
MUTE DET
Q401 2SC1623 AMP
Q104 2SC2712L SOFT LIMITER
D101 1SS123
Q105 2SC1623 BUFFER
Q405 DTA144EK AGC TIME CONSTANT SW
no marke : RECmode ( ) : PBmode


8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
A
B
C
D
E
F
G
H
I
J
Q408
2SA812
AMP
Q407
2SC1623
AMP
IC401
CX20037
AFM PROCESS
Q404
2SC1623
MUTE
CN113(RED)
MIC 5V
MIC
MIC GND
MIC 5V GND
CN406
IC101
CX20034
L102
150uH
CN007(WHT)
AUDIO 5V GND
CAM/LINE
LINE IN
LINE IN GND
LINE OUT
AUDIO 5V
TO VI-7 BOARD
CN007
CN114(WHT)
EP OUT
EP GND
CN401(WHT)
EP IN
EP GND
EP-2 BOARD
J491
EARPIECE
CN402
GND
TO SK-8 BOARD
TP402
TP401
TP102
TP104
DET
VCA
LIM
MUTE
V/I
VCO
4.2V REG
BUFF
HOLD
COMP
D.O DET
MUTE DET
HOLD 2
PG DOUB
B.P.F
FL401
1.5MHz
CARR
DEV
RV401
RV402
REC Y
RV101
RV102
H AMP
REC AMP
2ND RF AMP
REF
AMP
6dB ATT
Y TRAP
CONTROL LOGIC
Q401
2SC1623
AMP
L101
10μH
CN008(WHT)
REG 5V
VA PB MODE
REC ATF RF
RF SW P
MUTE
REG GND
TO VI-7 BOARD
CN008
Q405
DTA144EK
AGC TIME
CONSTANT SW
CN112(WHT)
REG GND
RF SW P
RF CH2
RF CH1
Q106
2SC1623
BUFFER
Q104
2SC2712L
SOFT LIMITER
D101
1SS123
Q105
2SC1623
BUFFER
no marke : REC mode
( ) : PB mode

- Signal path
  - ▨ : REC Y SIGNAL
  - ⇨ : PB Y SIGNAL
  - ▩ : REC CHROMA SIGNAL
  - ⇨ : PB CHROMA SIGNAL
  - ▨ : REC Y & CHROMA SIGNAL
  - ⇨ : PB Y & CHROMA SIGNAL

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note:

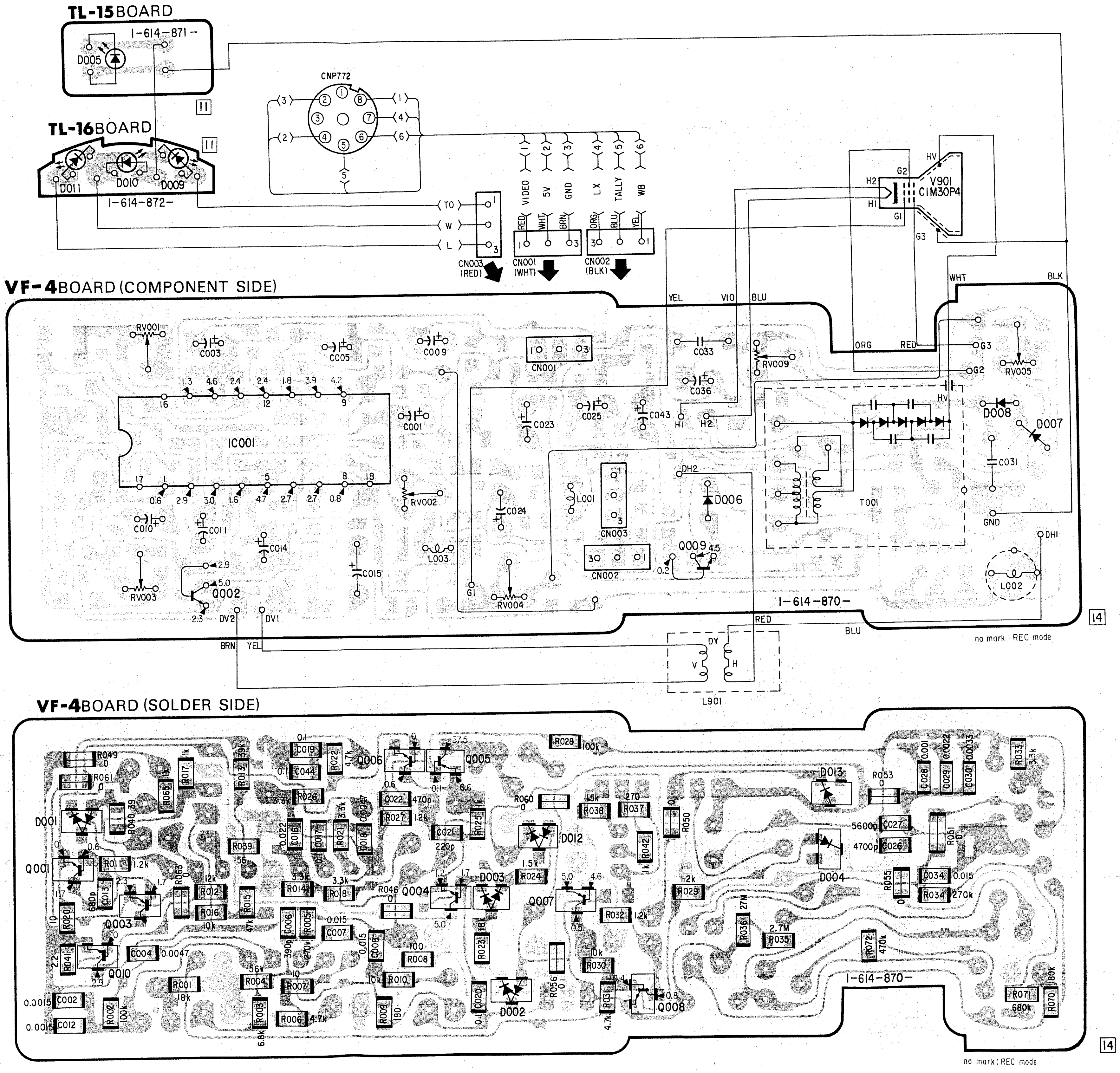
- All resistors are in ohms, 1/10W unless otherwise noted.
- All capacitors are in μF (p:pF) unless otherwise noted. 50V or less are not indicated except for electrolytic capacitors.
- All variable and semi fixed resistors have characteristic curve B, unless otherwise noted.
- ☐ : panel designation.
- —— : B+ bus.
- ☐ : adjustment for repair.
- Voltage and waveform measuring conditions:
  - (1) Sample object: Pattern box colour bars.
  - (2) Voltage values: Relative to ground, measured with a DC digital multimeter (impedance 10M-ohm or more).

When indicating parts by reference number, please include the board name.

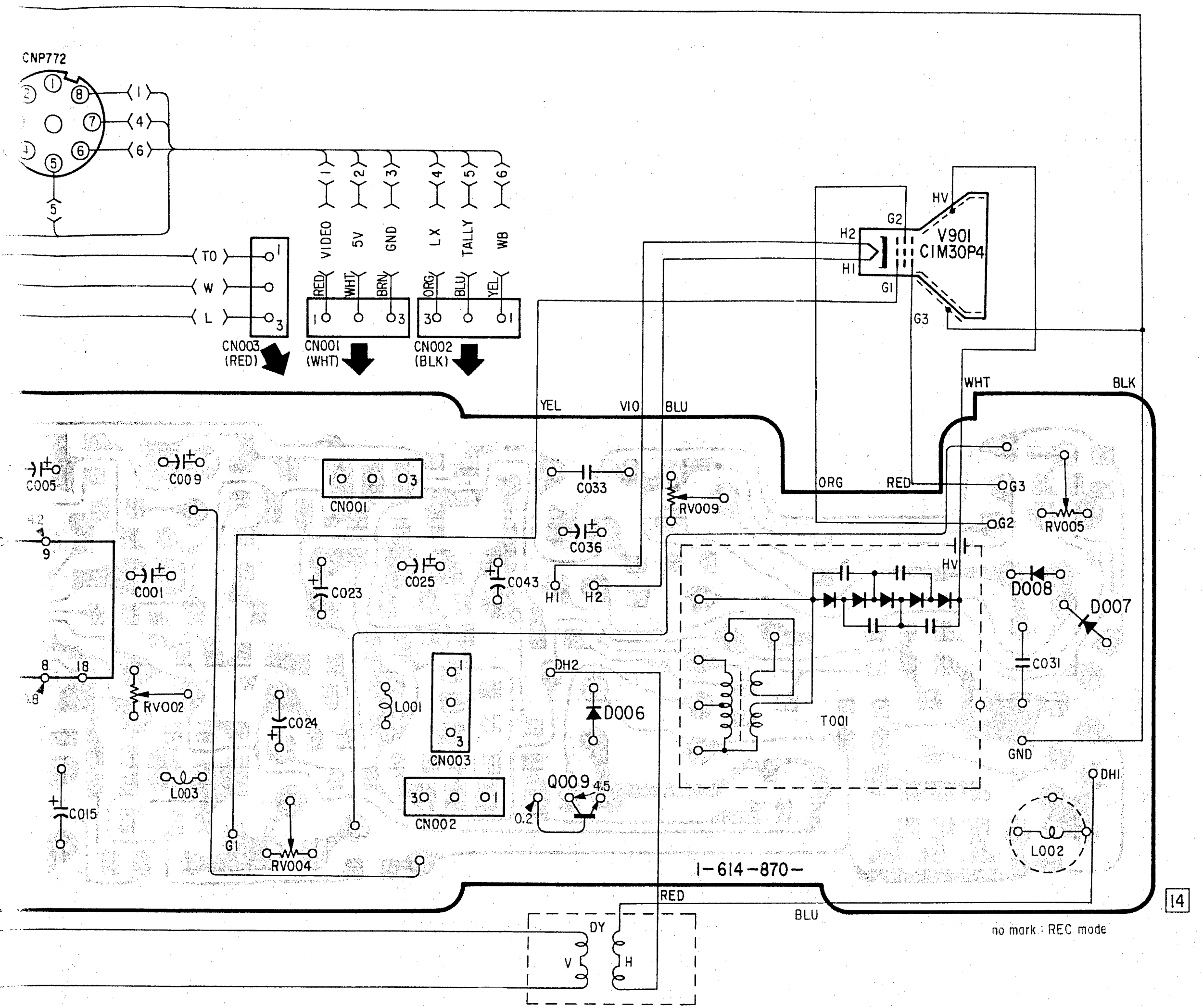
VF-4 (VIDEO AMP, VIDEO OUT, H. OUT, V. OUT), TL-15 (LED), TL-16 (LED) PRINTED WIRING BOARDS

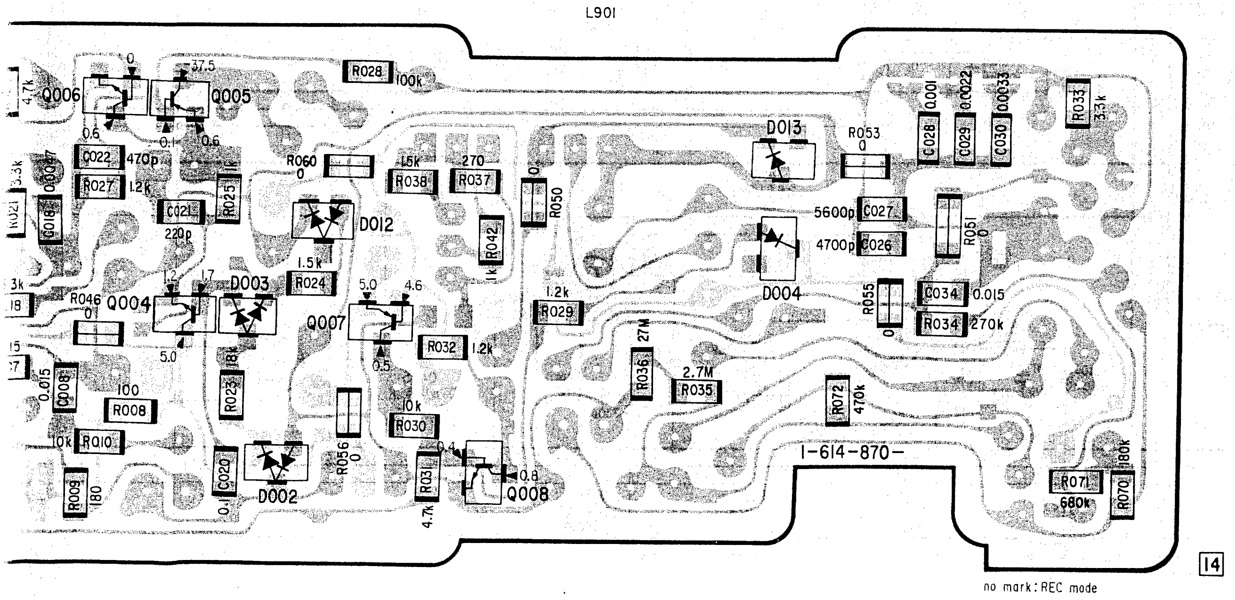
– Ref. No. VF-4, TL-15, TL-16 BOARD : 9000 series –

	Q,IC	D	ADJ
A		005	
B		011 009 010	
D		008	RV001 RV006,RV005
E	IC001	007 006	RV002
F	002 009		RV003 RV004
G	006,005	013	
H	001 003 004 007	001 012 004 003	
I	010 008	002	
	Q,IC	D	ADJ

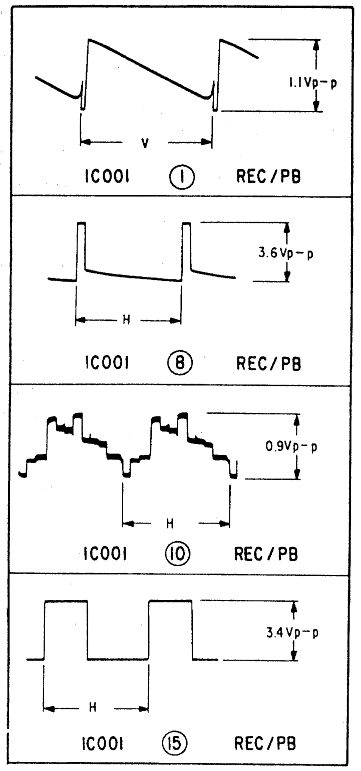

TL-15 BOARD
1-614-871-
D005
11
TL-16 BOARD
D011
D010
D009
1-614-872-
CNP772
TO
W
L
CN003 (RED)
VIDEO
5V
GND
LX
TALLY
WB
CN001 (WHT)
CN002 (BLK)
V901 C1M30P4
H2
H1
G1
G2
G3
HV
VF-4 BOARD (COMPONENT SIDE)
IC001
RV001
RV002
RV003
RV004
RV005
RV009
C003
C005
C009
C001
C010
C011
C014
C015
C023
C024
C025
C033
C036
C043
C031
Q002
Q009
D006
D007
D008
L001
L002
L003
T001
DH1
DH2
DV1
DV2
GND
1-614-870-
L901
DY
V
H
YEL
VIO
BLU
WHT
BLK
ORG
RED
BRN
14
no mark : REC mode
VF-4 BOARD (SOLDER SIDE)
Q001
Q003
Q004
Q005
Q006
Q007
Q008
Q010
D001
D002
D003
D004
D012
D013
1-614-870-
14
no mark : REC mode

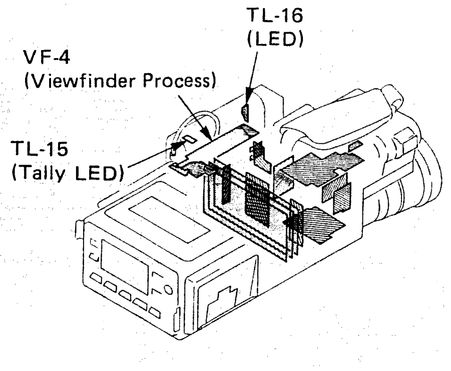
Note:
- ▨ : pattern from the side whi
- ▨ : B+ pattern from the side
- ▨ : patter of the rear side.


CNP772
(1) (4) (6)
TO W L
CN003 (RED)
(1) VIDEO (2) 5V (3) GND (4) LX (5) TALLY (6) WB
RED WHT BRN ORG BLU YEL
CN001 (WHT)
CN002 (BLK)
V901 C1M30P4
HV G2 H2 H1 G1 G3
YEL VIO BLU WHT BLK ORG RED
C005 C009 CN001 C033 RV009 G3 G2 RV005
C001 C023 C025 C043 C036 H1 H2 HV D008 D007
RV002 C024 L001 CN003 DH2 D006 T001 C031 GND
L003 C015 CN002 Q009 4.5 0.2 DHI L002
G1 RV004
1-614-870-
RED BLU
DY V H
L901
no mark : REC mode
14


Q006 Q005 R028 100k D013 R053 C028 C029 C030 R033 3.3k
C022 470p R027 1.2k C021 220p R025 R060 R038 R037 270 D012
R046 Q004 D003 R024 Q007 R042 R050 5600p C027 4700p C026 R051
R029 1.2k R055 C034 0.015 R034 270k D004
R008 100 R023 R032 1.2k R036 27M R035 2.7M R072 470k
R010 R030 10k R056 R031 R071 680k R070 180k
R009 180 C020 D002 Q008 4.7k
1-614-870-
no mark : REC mode
14

VF-4 BOARD




TL-16 (LED)
VF-4 (Viewfinder Process)
TL-15 (Tally LED)

Note:

- ▨ : pattern from the side which enables seeing.
- ░ : B+ pattern from the side which enables seeing.
- ░ : patter of the rear side.

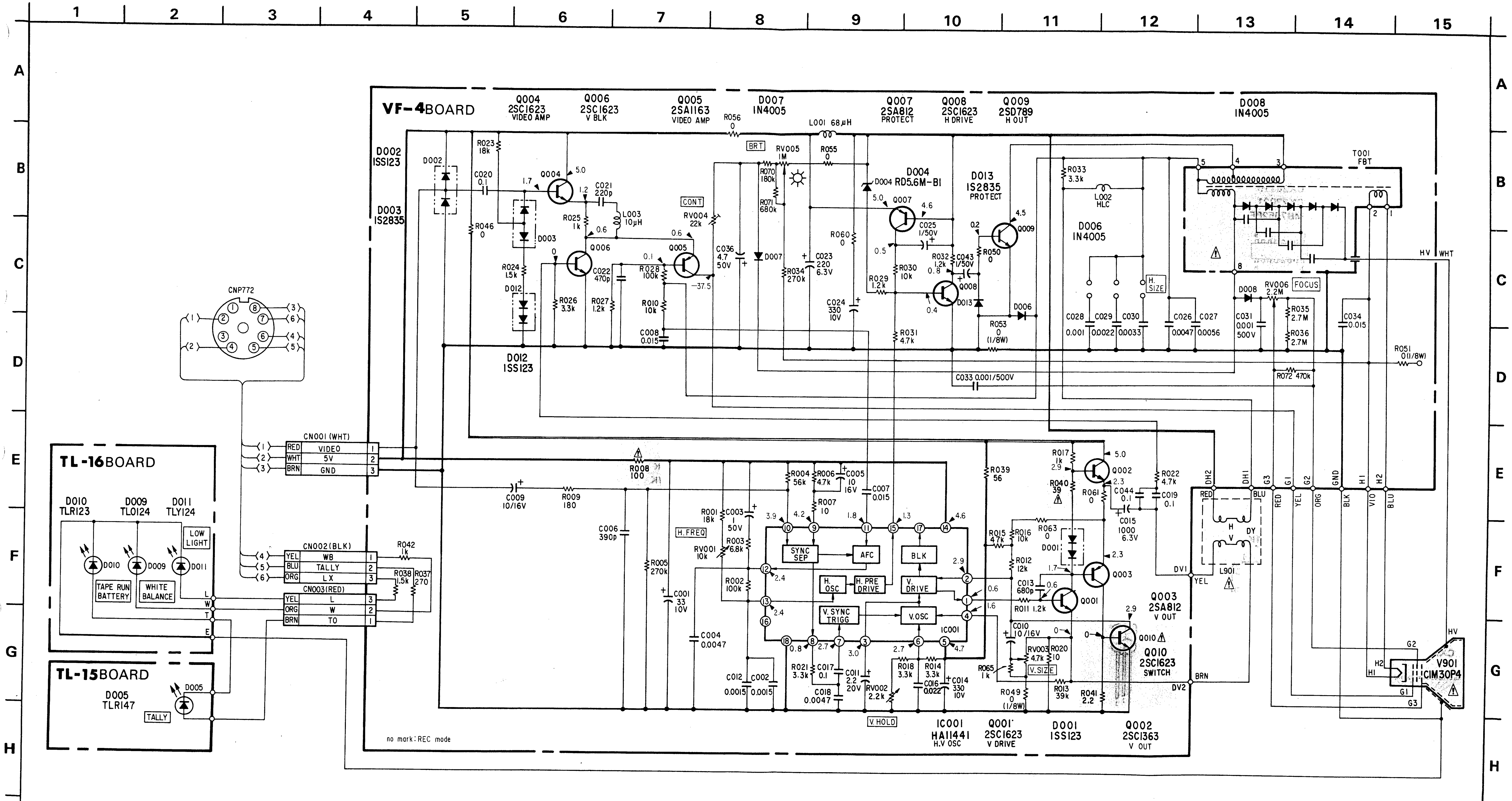
Caution:

Pattern face side: (Solder Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the part face are indicated.

When indicating parts by reference number, please include the board name.

VF-4 (VIDEO AMP, VIDEO OUT, H. OUT, V. OUT), TL-15 (LED), TL-16 (LED) SCHEMATIC DIAGRAM

– Ref. No. VF-4, TL-15, TL-16 BOARD : 9000 series –


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
VF-4BOARD
Q004 2SC1623 VIDEO AMP
Q006 2SC1623 V BLK
Q005 2SA1163 VIDEO AMP
D007 IN4005
Q007 2SA812 PROTECT
Q008 2SC1623 H DRIVE
Q009 2SD789 H OUT
D008 IN4005
D002 ISS123
D003 IS2835
D012 ISS123
R056 0
L001 68μH
BRT
RV005 1M
R055 0
R070 180k
R071 680k
CONT
RV004 22k
D004 RD5.6M-BI
D013 IS2835 PROTECT
R023 18k
C020 0.1
R046 0
R024 1.5k
R025 1k
C021 220p
L003 10μH
C022 470p
R026 3.3k
R027 1.2k
R028 100k
R010 10k
C008 0.015
C036 4.7 50V
C023 220 6.3V
R034 270k
C024 330 10V
R060 0
R029 1.2k
R030 10k
C025 1/50V
R032 1.2k
C043 1/50V
R050 0
R031 4.7k
R053 0 (1/8W)
D006
C033 0.001/500V
R033 3.3k
L002 HLC
D006 IN4005
H. SIZE
C028 0.001
C029 0.0022
C030 0.0033
C026 0.0047
C027 0.0056
T001 FBT
D008
RV006 2.2M
FOCUS
C031 0.001 500V
R035 2.7M
R036 2.7M
C034 0.015
R051 0(1/8W)
R072 470k
HV
WHT
CNP772
CN001 (WHT)
RED VIDEO 1
WHT 5V 2
BRN GND 3
TL-16BOARD
D010 TLR123
D009 TL0124
D011 TLY124
LOW LIGHT
TAPE RUN BATTERY
WHITE BALANCE
CN002(BLK)
YEL WB 1
BLU TALLY 2
ORG LX 3
CN003(RED)
YEL L 3
ORG W 2
BRN TO 1
R042 1k
R038 1.5k
R037 270
TL-15BOARD
D005 TLR147
TALLY
R008 100
C009 10/16V
R009 180
C006 390p
R005 270k
C001 33 10V
C004 0.0047
H. FREQ
R001 18k
C003 1 50V
R003 6.8k
RV001 10k
R002 100k
R004 56k
R006 4.7k
C005 10 16V
C007 0.015
R007 10
SYNC SEP
AFC
BLK
H. OSC
H. PRE DRIVE
V. DRIVE
V. SYNC TRIGG
V. OSC
IC001
R021 3.3k
C017 0.1
C011 2.2 20V
RV002 2.2k
C012 0.0015
C002 0.0015
C018 0.0047
R018 3.3k
R014 3.3k
C016 0.022
C014 330 10V
V. HOLD
R039 56
R017 1k
R040 39
R061 0
Q002
C044 0.1
R022 4.7k
C019 0.1
C015 1000 6.3V
R015 4.7k
R016 10k
R063 0
D001
R012 12k
C013 680p
R011 1.2k
Q001
Q003
C010 10/16V
RV003 4.7k
R020 10
V. SIZE
R065 1k
R049 0 (1/8W)
R013 39k
R041 2.2
Q010
Q003 2SA812 V OUT
Q010 2SC1623 SWITCH
DH2 DH1 G3 G1 G2 GND H1 H2
RED YEL ORG BLK VIO BLU
DY
L901
DV1
DV2
BRN
V901 CIM30P4
no mark: REC mode
IC001 HA11441 H.V OSC
Q001 2SC1623 V DRIVE
D001 ISS123
Q002 2SC1363 V OUT

Note:

- All resistors are in ohms, 1/10W unless otherwise noted.
- All capacitors are in μF (p:pF) unless otherwise noted. 50V or less are not indicated except for electrolytic capacitors.
- All variable and semi fixed resistors have characteristic curve B, unless otherwise noted.
- ▭ : panel designation.

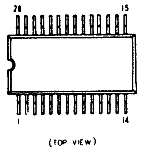
- —— : B+ bus.
- ▭ : adjustment for repair.
- Voltage and waveform measuring conditions:
  - (1) Sample object: Pattern box colour bars.
  - (2) Voltage values: Relative to ground, measured with a DC digital multimeter (impedance 10M-ohm or more).

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

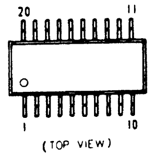
When indicating parts by reference number, please include the board name.

SEMICONDUCTORS

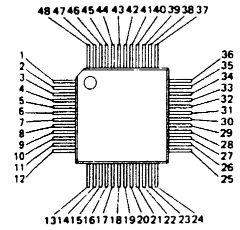
CX7930
CX7930-1
CX7930A


28
15
1
14
(TOP VIEW)

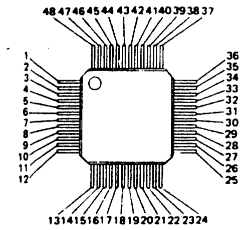
CX7991


20
11
1
10
(TOP VIEW)

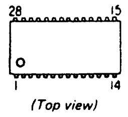
CX20030
CX20031
CX20032
CX20053
CX20055
CX20056
CX23014
CX23047B
CX23054
MB88505-342M


48 47 46 45 44 43 42 41 40 39 38 37
1 2 3 4 5 6 7 8 9 10 11 12
36 35 34 33 32 31 30 29 28 27 26 25
13 14 15 16 17 18 19 20 21 22 23 24

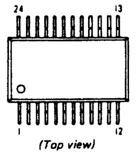
CX20034
CX20037
CX20151


48 47 46 45 44 43 42 41 40 39 38 37
1 2 3 4 5 6 7 8 9 10 11 12
36 35 34 33 32 31 30 29 28 27 26 25
13 14 15 16 17 18 19 20 21 22 23 24

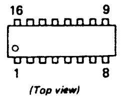
CX20035
CX20036
CX22022


28
15
1
14
(Top view)

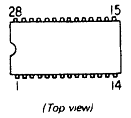
CX20114


24
13
1
12
(Top view)

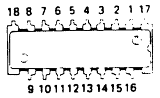
CX20115
CX22021
MB7052PF


16
9
1
8
(Top view)

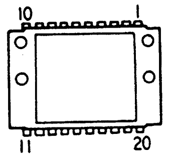
CX23039


28
15
1
14
(Top view)

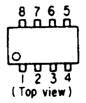
HA11441


18 8 7 6 5 4 3 2 1 17
9 10 11 12 13 14 15 16

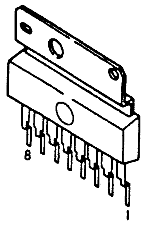
ICX-021K



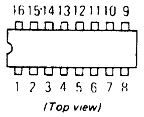
MB3763PF
SN75361AP


8 7 6 5
1 2 3 4
(Top view)

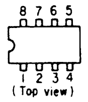
MB3763PS



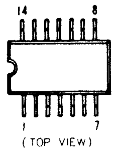
MB88201-170N
TC4526BF


16 15 14 13 12 11 10 9
1 2 3 4 5 6 7 8
(Top view)

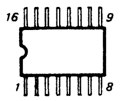
MMH0026CP1


8 7 6 5
1 2 3 4
(Top view)

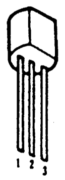
TC4013BF
TC4066BF
TC4069UBF
TC504013BF


14
8
1
7
(TOP VIEW)

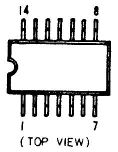
TC4028BF
TC4052BF



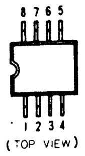
TL431CLP
TL431CLPB



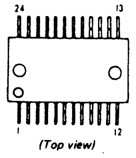
µPC324G2


14
8
1
7
(TOP VIEW)

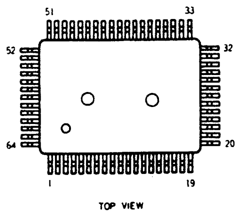
µPC358G2
µPC393G2


8 7 6 5
1 2 3 4
(TOP VIEW)

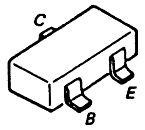
µPD6107G


24
13
1
12
(Top view)

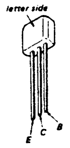
µPD7503G-324


51
33
52
32
64
20
1
19
TOP VIEW

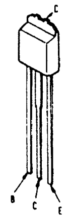
2SA812
2SA1122
2SA1162
2SA1163
2SA1179
2SA1226
2SB624-BV4
2SC1621
2SC1623
2SC2223
2SC2223-F14
2SC2412
2SC2712
2SC2812
2SC3052
2SD596
2SD1048
DTA114EK
DTA114ES
DTA124EK
DTA144EK
DTA144WK
DTC114EK
DTC143TK
DTC144EK
DTC144WK



2SA1175


letter side
E
C
B

2SA1242LB
2SA1385



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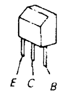
2SB733-4
2SB734
2SD789



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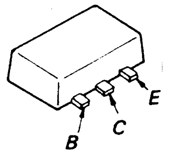
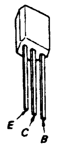
2SD999
2SD1005



2SC633-SP8



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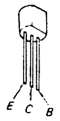
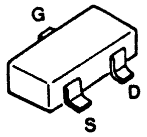
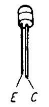
2SC1364
2SC1475
2SC1475-13



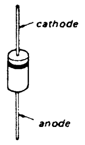
2SK94
2SK160



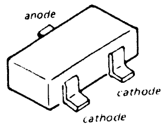
NJL7141E



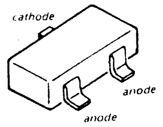
1N4005
1S1555


cathode
anode

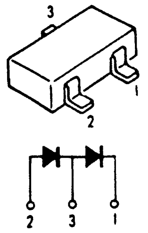
1S2835
DAP202K
MA151WA


anode
cathode
cathode

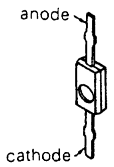
1S2837
DAN202K
MA151WK


cathode
anode
anode

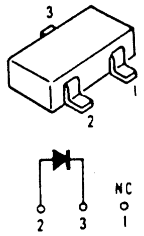
1SS123
DA204K
MA153



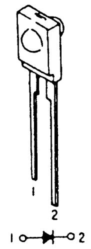
1T32
1T32-2


anode
cathode

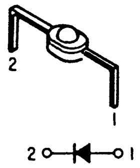
E10DS2
E10QS03
RD3.9M-B1
RD3.9M-B2
RD5.1M-B1
RD5.1M-B2
RD5.6M-B1
RD5.6M-B2
RD6.8M-B1
RD6.8M-B2
RD6.8M-B3
RD9.1M-B1
RD12M-B1
RD12M-B2
RD12M-B3



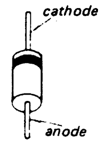
GL-450S



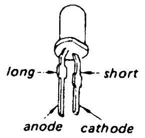
GL-1EG102
GL-1HY102
GL-1PR102



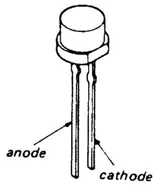
HZ4ALL
HZ5BLL
HZ5CLL
RD3.3E-L1
RD4.3E-B2
RD6.2E-L2


cathode
anode

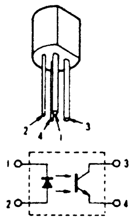
TLO123
TLO124
TLR123
TLR124
TLY124


long
short
anode
cathode

TLR147


anode
cathode

NJL5141E

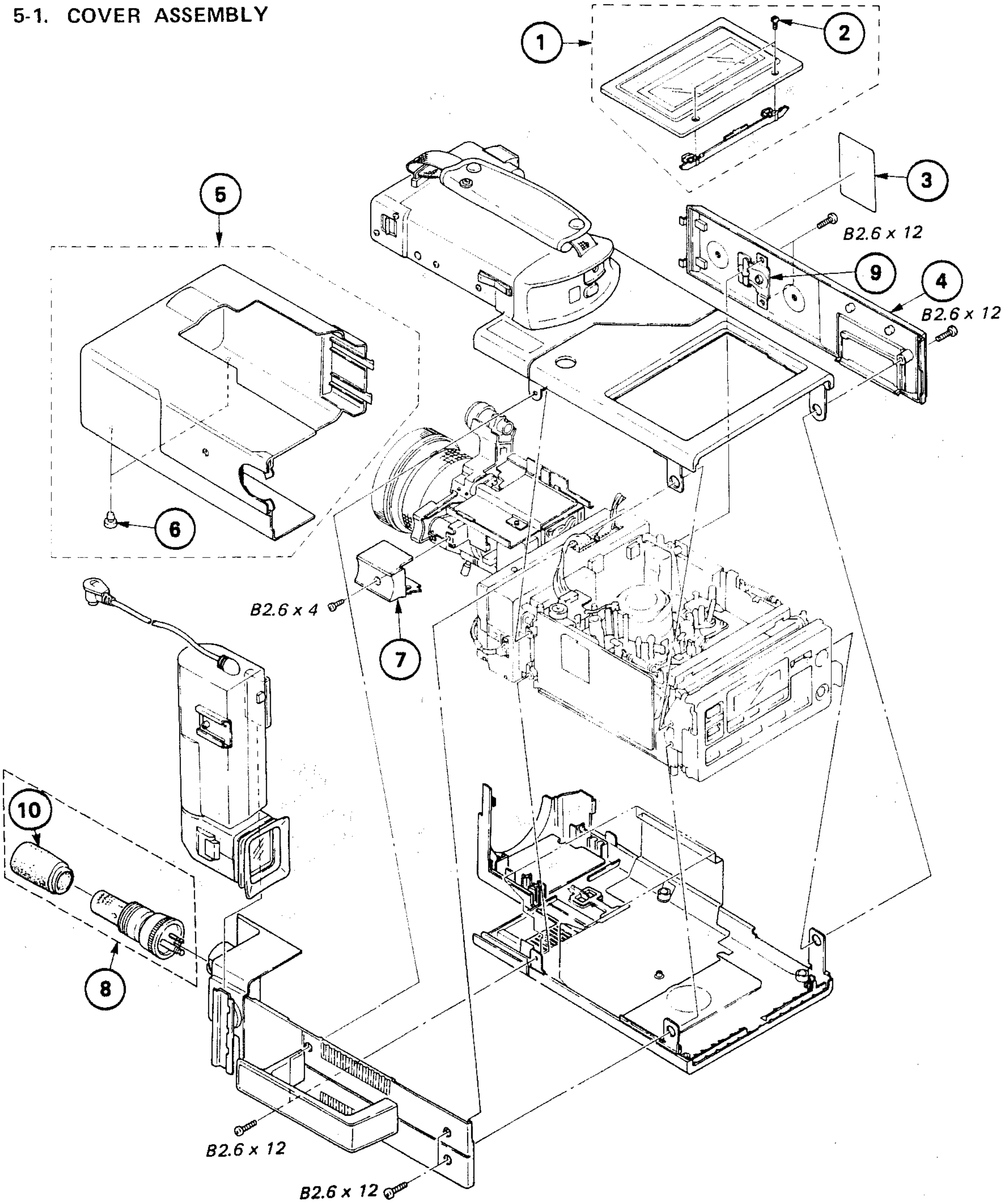


SECTION 5
EXPLODED VIEWS

NOTE:
- Itmes with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

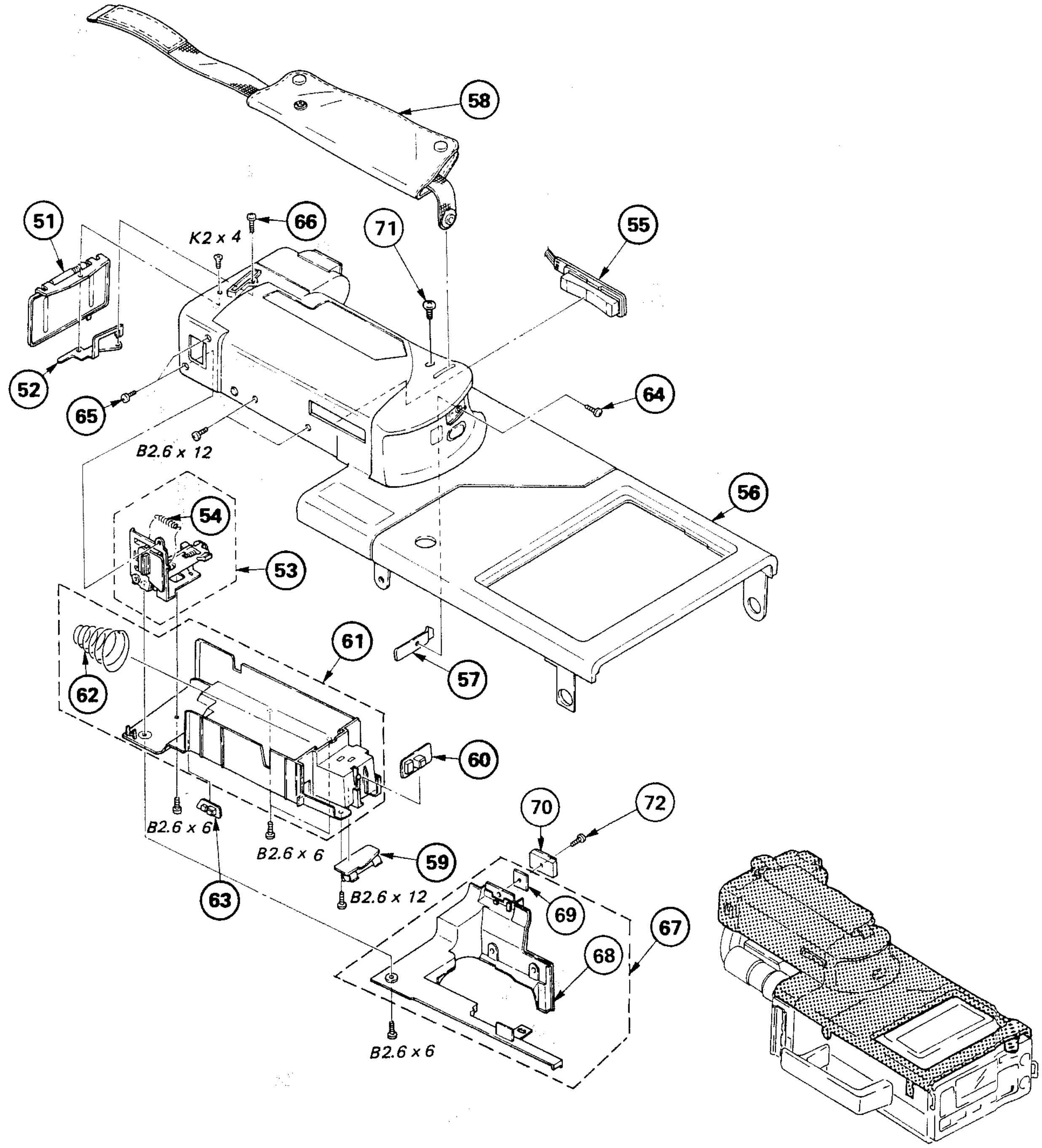
The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

5-1. COVER ASSEMBLY



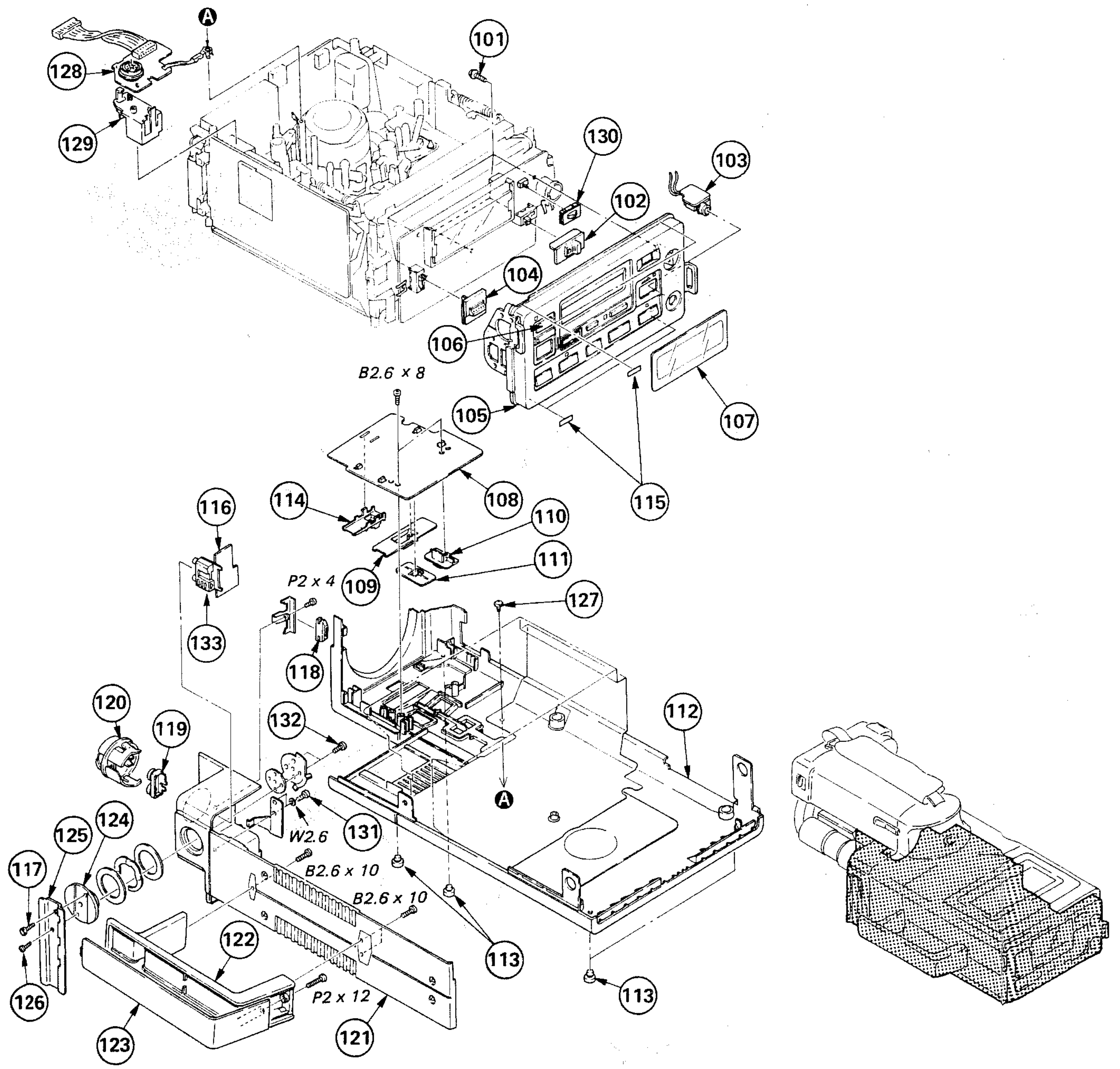
No.	Part No.	Description	Remark
1	X-3686-674-1	LID ASSY, CASSETTE	2
2	3-686-804-01	SCREW (2X5), TAPPING	
3	*3-693-287-01	LABEL, MODEL NUMBER (AEP,UK MODEL)	
	*3-693-286-01	LABEL, MODEL NUMBER (W.G MODEL)	
4	X-3686-650-1	CABINET (LOWER) ASSY	9
5	X-3686-684-1	COVER ASSY, CAMERA HEAD	6
6	3-688-931-01	FOOT, RUBBER	
7	3-696-008-01	CAP, CATCHER, RAY	
8	8-810-510-90	MIC (C-2008 SET) ASSY	10
9	3-688-936-01	SCREW, TRIPOD	
10	2-536-739-01	MIC HOOD	

5-2. CABINET (LEFT) ASSEMBLY


58
51
K2 x 4
66
71
55
52
65
64
B2.6 x 12
56
54
53
61
57
62
60
70
72
B2.6 x 6
B2.6 x 6
59
B2.6 x 12
63
69
67
68
B2.6 x 6

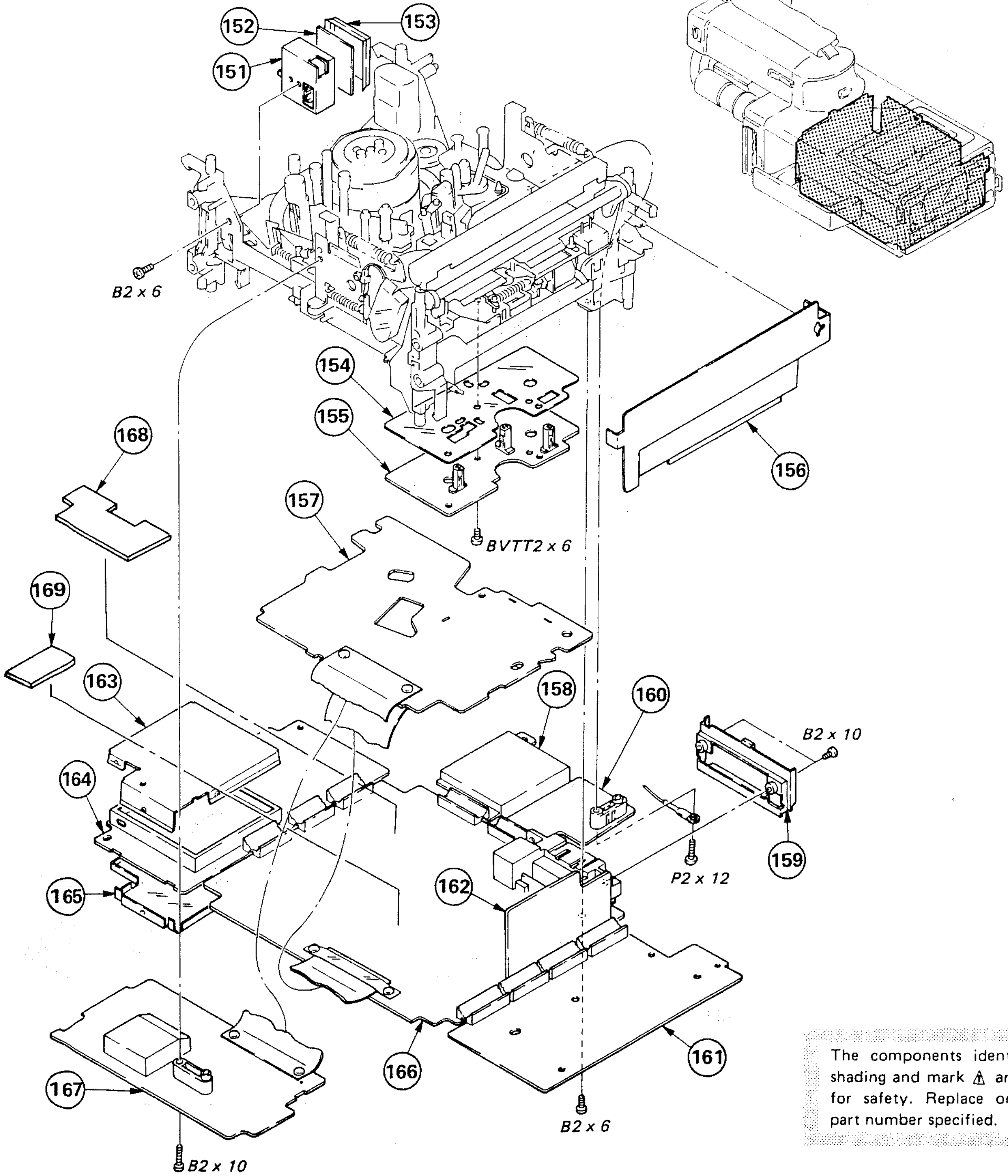
No.	Part No.	Description	Remark
51	X-3686-613-1	LID ASSY, BATTERY	
52	3-688-926-01	BRACKET (FRONT), GRIP	
53	X-3686-560-1	LOCK ASSY, BATTERY	54
54	3-570-898-00	SPRING, TENSION	
55	1-554-944-11	SWITCH, PUSH (ZOOM) S904	
56	X-3686-651-1	CABINET (LEFT) SUB ASSY	51, 52, 57, 58, 64, 66, 71
57	3-696-035-01	BRACKET, BELT	
58	3-696-007-01	BELT, GRIP	
59	*1-613-581-11	FU-34 BOARD	
60	*1-616-585-11	SS-57 BOARD	
61	X-3686-664-1	HOLDER ASSY, BATTERY	62
62	3-686-775-01	SPRING	
63	*1-616-649-11	SS-58 BOARD	
64	3-686-999-31	SCREW (2.6X12) (C LOCK), (+) B	
65	3-686-999-11	SCREW (2.6X6) (C LOCK), (+) B	
66	3-688-901-01	SCREW (3X7) (C LOCK), (+) B	
67	X-3686-672-1	CABINET (YF) ASSY	68, 69
68	3-696-010-01	CABINET (YF)	
69	*3-693-298-01	BRACKET, RUBBER FOOT	
70	3-693-297-01	FOOT, RUBBER, RADIATION	
71	3-696-059-01	SCREW (M2.6X12) (C LOCK), +K	
72	3-686-999-01	SCREW (2.6X4) (C LOCK), (+) B	

5-3. CONTROL PANEL, CABINET (UPPER, RIGHT) ASSEMBLY


A
101
128
129
130
103
102
104
106
B2.6 x 8
105
107
115
116
114
108
110
111
P2 x 4
109
127
133
118
120
119
132
112
A
125
124
117
W2.6
131
B2.6 x 10
B2.6 x 10
122
113
126
P2 x 12
113
123
121

No.	Part No.	Description	Remark
101	3-669-480-11	+ PTPWH 2	
102	3-686-785-01	BUTTON, REC	
103	*1-613-579-11	EP-2 BOARD	
104	3-686-798-01	KNOB, EJECT	
105	3-686-981-21	PANEL, CONTROL	
106	3-686-833-02	BUTTON, POWER	
107	3-686-786-11	WINDOW, LCD	
108	*A-7060-231-A	RR-12 BOARD, COMPLETE	
109	3-693-268-01	KNOB, WB	
110	3-688-933-01	KNOB, IRIS	
111	3-688-932-01	KNOB, POWER, C	
112	X-3686-666-1	CABINET (RIGHT) SUB ASSY	113
113	3-688-931-01	FOOT, RUBBER	
114	3-693-267-01	KNOB, F	
115	*3-880-474-00	CUSHION, 15X5X0.3	
116	*A-7060-230-A	MA-14 BOARD, COMPLETE	
117	3-696-038-01	SCREW (M2.6X4), SPECIAL HEAD	
118	*3-688-979-01	CUSHION (X), MICROPHONE	
119	*3-686-776-01	CUSHION (A), MICROPHONE	
120	3-688-996-01	HOLDER, MICROPHONE	
121	X-3686-665-1	CABINET (UPPER) SUB ASSY	117, 122-126 131, 132
122	3-688-934-11	HANDLE (1)	
123	3-688-935-01	HANDLE (2)	
124	*3-693-209-11	TABLE, ROTARY	
125	*3-696-064-01	BRACKET, VF	
126	3-696-039-01	SCREW (2.6X4) (C LOCK), +P	
127	3-703-502-31	SCREW	
128	*1-613-580-11	EF-3 BOARD	
129	*3-688-953-01	HOLDER, EF	
130	3-686-979-01	KNOB, S/L	
131	3-686-999-01	SCREW (2.6X4) (C LOCK), (+) B	
132	3-686-999-11	SCREW (2.6X6) (C LOCK), (+) B	
133	*1-616-645-11	MJ-9 BOARD	

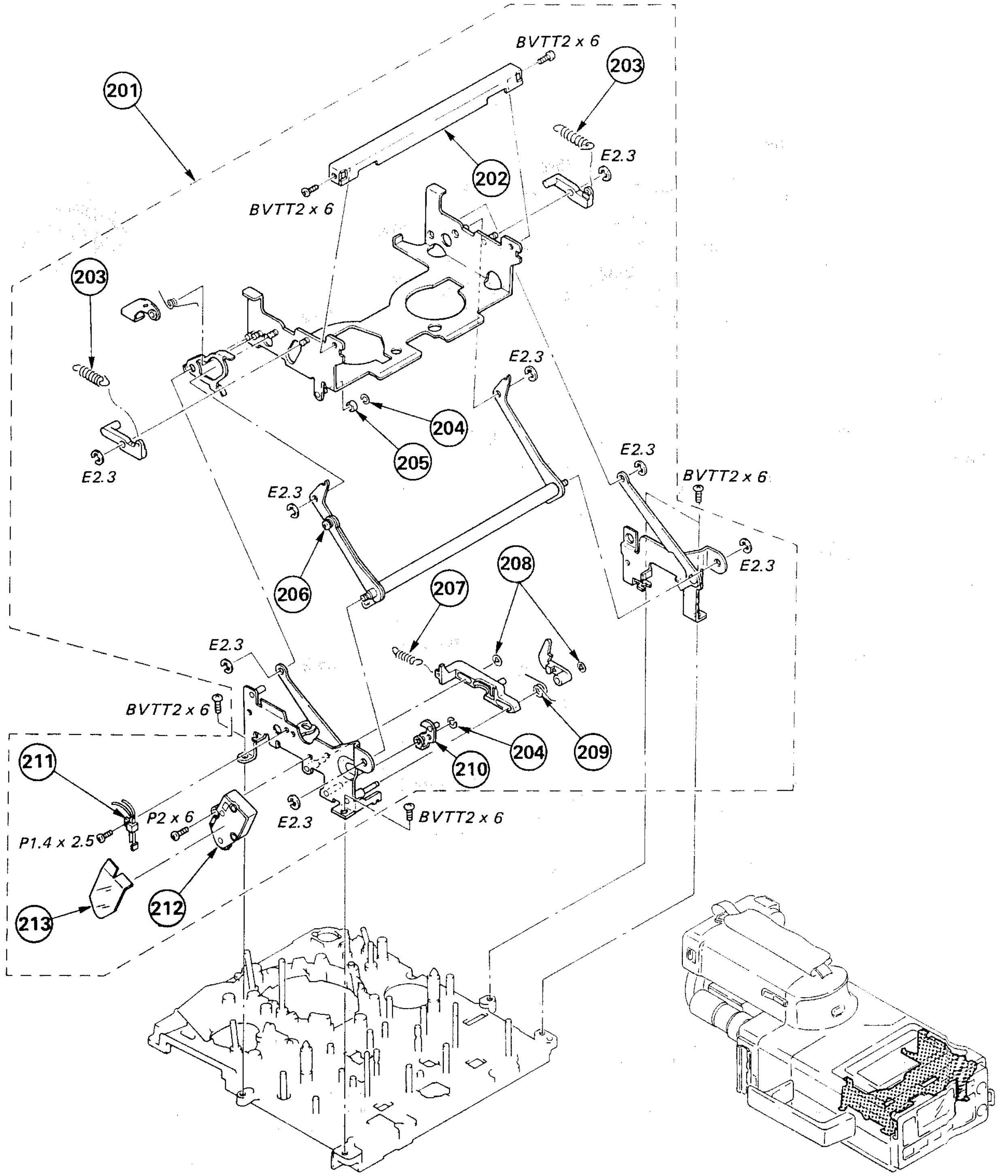
5-4. MAIN BOARD ASSEMBLY


152
153
151
B2 x 6
154
155
168
156
157
BVTT2 x 6
169
163
158
160
B2 x 10
164
159
P2 x 12
165
162
166
161
167
B2 x 6
B2 x 10

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

No.	Part No.	Description	Remark
151	*3-686-955-01	CASE (MAIN), SHIELD, FE	
152	*A-7060-222-A	FE-4 BOARD, COMPLETE	
153	*3-686-953-02	LID, SHIELD CASE, FE	
154	*3-686-948-01	INSULATOR, RS	
155	*A-7060-221-A	RS-5 BOARD, COMPLETE	
156	*3-686-947-01	BLIND, CASSETTE COMPARTMENT	
157	*A-7060-243-A	MC-8 BOARD, COMPLETE	
158	⚠.1-464-376-21	CONVERTER, DC-DC DR901	
159	*3-688-908-01	COVER, M	
160	*A-7060-227-A	HS-5 BOARD, COMPLETE	
161	*A-7060-246-A	SK-8 BOARD, COMPLETE	
162	*A-7060-226-A	DS-8 BOARD, COMPLETE	
163	*3-686-954-01	LID, UPPER, SHIELD CASE, AR	
164	*A-7060-245-A	AR-2 BOARD, COMPLETE	
165	*X-3686-585-1	LID ASSY, BOTTOM, SHIELD CASE	
166	*A-7060-260-A	VI-7 BOARD, COMPLETE	168, 169
167	*A-7060-242-A	SV-14 BOARD, COMPLETE	
168	*A-7070-168-A	EX-3 BOARD, COMPLETE	
169	*1-616-826-11	TK-2 BOARD	

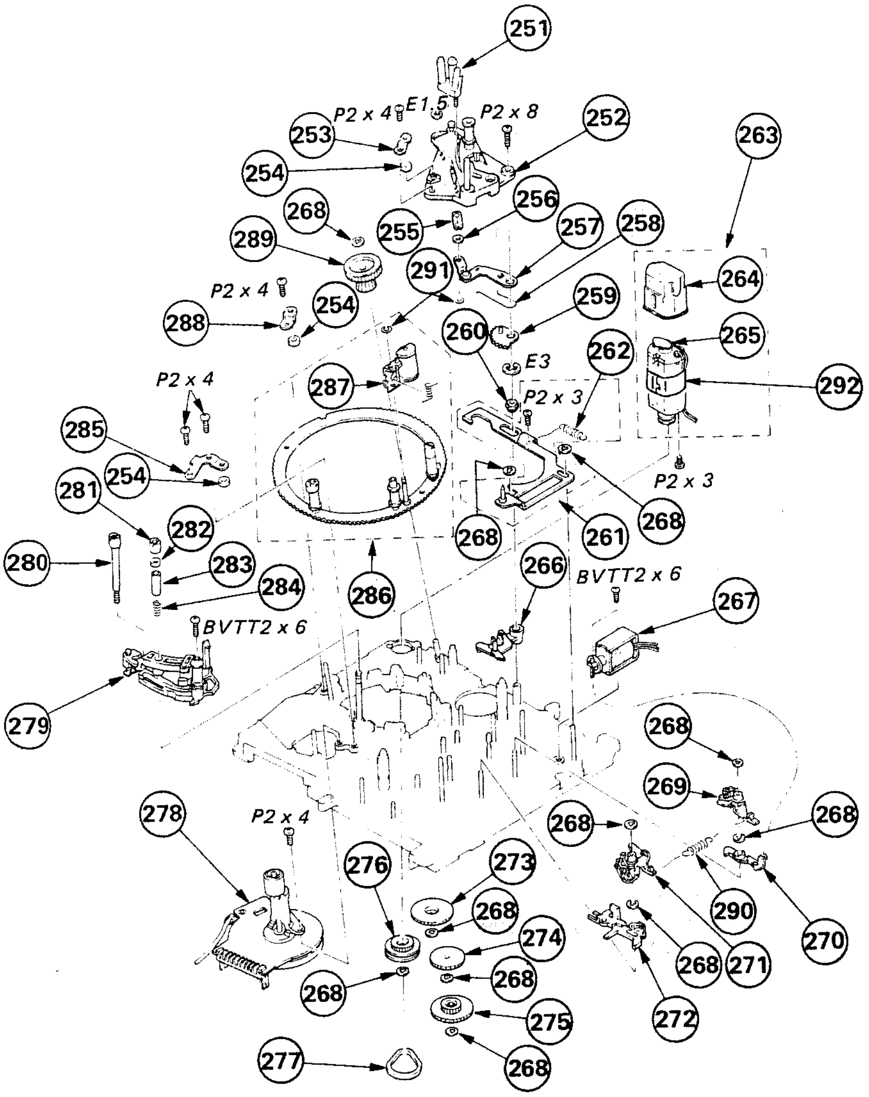
5-5. CASSETTE COMPARTMENT ASSEMBLY


201
BVTT2 x 6
203
202
E2.3
BVTT2 x 6
203
E2.3
204
205
E2.3
E2.3
BVTT2 x 6
E2.3
E2.3
206
207
208
E2.3
BVTT2 x 6
211
P2 x 6
E2.3
BVTT2 x 6
P1.4 x 2.5
210
204
209
213
212

No.	Part No.	Description	Remark
201	A-7040-005-A	CASSETTE COMPARTMENT ASSY	202-213
202	3-686-718-01	REINFORCEMENT	
203	3-686-883-01	SPRING, TENSION	
204	3-578-265-11	WASHER, STOPPER	
205	*3-686-693-01	ROLLER, LOCK	
206	3-672-561-00	+PSW 2X4	
207	3-696-047-01	SPRING, TENSION	

No.	Part No.	Description	Remark
208	3-669-465-00	WASHER (1.5), STOPPER	
209	3-686-694-01	SPRING, TORSION	
210	*X-3686-541-1	CLAW ASSY, LOCK	
211	1-553-226-00	SWITCH, LEAF (CASSETTE LOCK) S01	
212	*3-681-528-00	DAMPER	
213	*3-686-937-01	INSULATOR, DAMPER	

5-6. CHASSIS ASSEMBLY 1


251
P2 x 4
E1.5
P2 x 8
252
253
254
263
268
255
256
257
258
289
291
264
P2 x 4
254
259
288
260
265
E3
262
292
P2 x 4
287
P2 x 3
285
254
281
P2 x 3
282
268
268
261
280
283
266
284
BVTT2 x 6
286
267
BVTT2 x 6
279
268
269
278
P2 x 4
268
268
276
273
290
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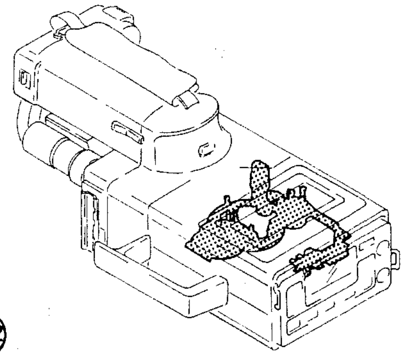
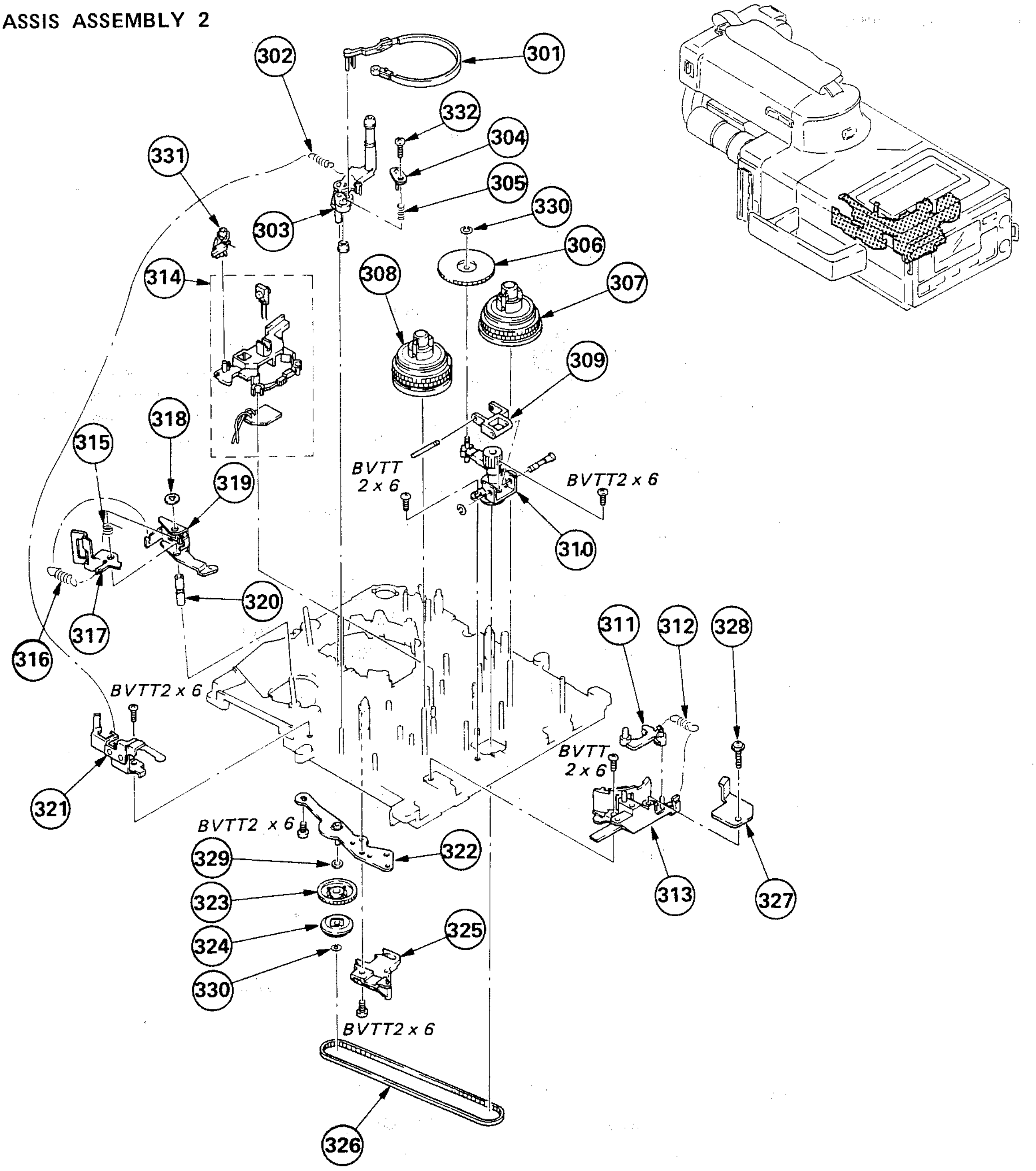
268
274
268
271
268
268
275
272
277
268



The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

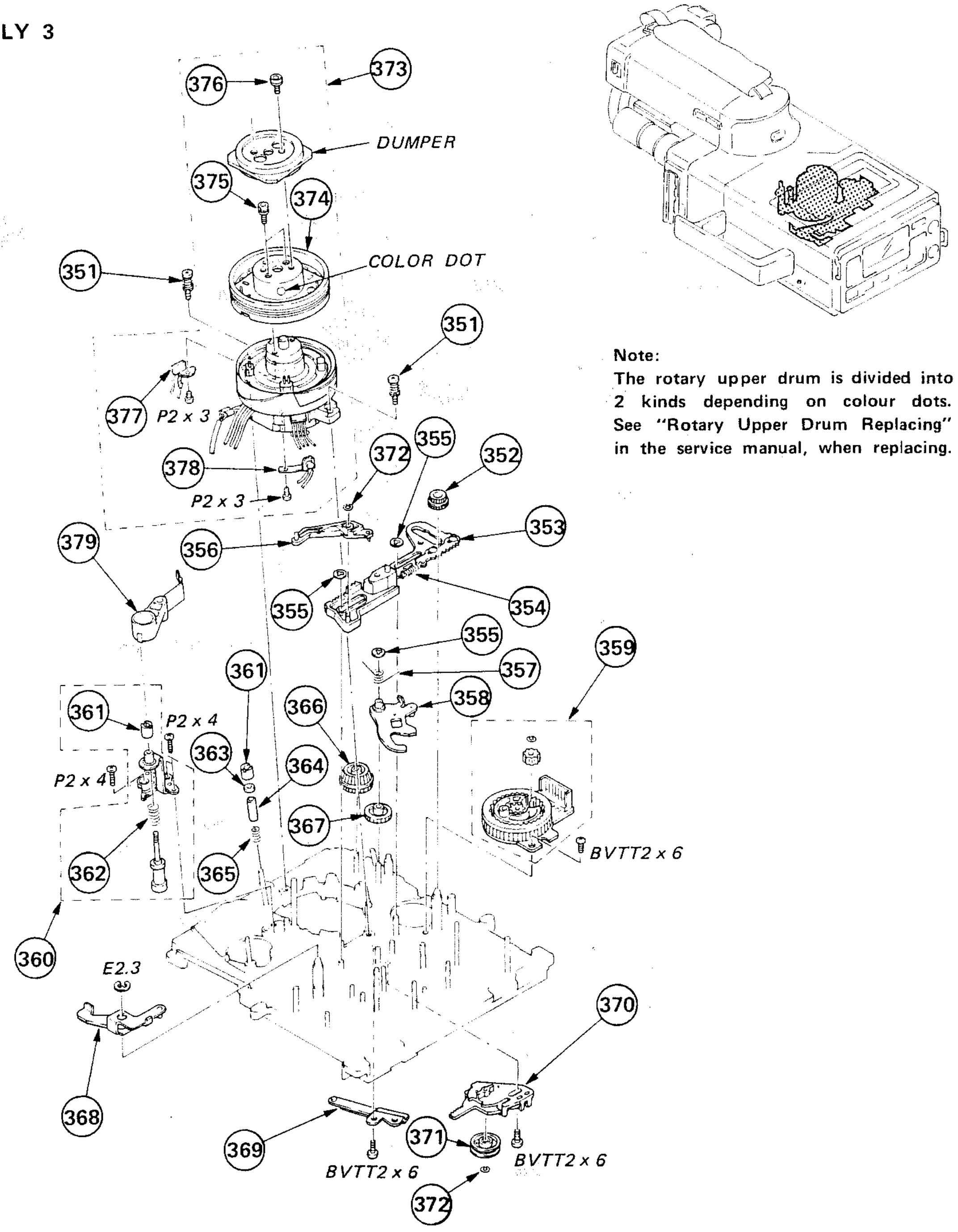
No.	Part No.	Description	Remark
251	X-3686-502-1	BASE ASSY, GUIDE	
252	X-3686-577-1	CHASSIS ASSY, GUIDE, SLANT	
253	*3-686-503-01	RETAINER, ROLLER	
254	3-697-538-01	ROLLER, RING	
255	3-686-663-01	WASHER, STOPPER, 2 GANG	
256	3-701-436-21	WASHER, POLYEHTHYLENE	
257	X-3686-537-1	ARM ASSY	
258	3-686-701-01	SPRING	
259	X-3686-535-1	GEAR ASSY, SECTOR	
260	3-686-537-01	RETAINER, LOCK SLODER	
261	*A-7040-014-A	SLIDER ASSY, LOCK	262
262	3-686-887-01	SPRING, TENSION	
263	⚠.A-7040-009-A	MOTOR ASSY, L (LOADING) M901	264, 265
264	*3-686-757-01	CAP, SHIELD, L MOTOR	
265	1-161-073-11	CAP, CERAMIC 0.033MF C902	
266	*3-686-636-01	ARM, T.S RELEASE	
267	⚠.1-454-377-11	SOLENOID, PLUNGER PM901	
268	3-669-465-00	WASHER (1.5), STOPPER	
269	X-3686-574-1	BRAKE ASSY, MAIN, TAKE-UP	
270	*3-686-635-01	ARM, P	
271	X-3686-573-1	BRAKE ASSY, MAIN, SUPPLY	
272	*3-686-629-01	SLIDER, SELECTION, UPPER & LOWER	
273	3-686-508-01	GEAR, NO.2	
274	3-686-545-01	GEAR, NO.3	
275	3-686-544-01	GEAR, NO.4	
276	X-3686-514-1	GEAR ASSY, NO.1	
277	3-686-546-01	BELT, L- MOTOR	
278	8-838-077-01	MOTOR, DC (BHF-2800B) (CAPSTAN) M902	
279	A-7040-054-A	GUIDE (P) ASSY, ENTRANCE	
280	3-686-561-01	SCREW, DRUM GUARD	
281	3-686-724-01	NUT, GUIDE	
282	*3-686-894-01	FLANGE, #3 #4 GUIDE	
283	3-686-912-01	GUIDE, #3 #4	
284	3-669-666-00	SPRING, COMPRESSION	
285	*3-686-675-01	STOPPER, RING	
286	A-7040-007-A	RING ASSY, LOADING	287, 291
287	X-3686-576-1	ARM ASSY, PINCH ROLLER	
288	*3-686-911-01	PLATE, TOP, ROLLER	
289	3-697-518-01	GEAR, NO.10	
290	3-686-882-01	SPRING, TENSION	
291	3-686-559-01	WASHER	
292	3-691-920-01	PLATE, SHIELD, L.MOTOR	

5-7. CHASSIS ASSEMBLY 2


302
301
332
304
331
305
330
303
306
314
308
307
309
318
315
BVTT 2 x 6
BVTT2 x 6
319
310
320
311
312
328
317
316
BVTT2 x 6
BVTT 2 x 6
321
BVTT2 x 6
322
329
313
327
323
325
324
330
BVTT2 x 6
326

No.	Part No.	Description	Remark
301	X-3686-531-1	BAND ASSY, TENSION REGULATOR	
302	3-686-918-01	SPRING, TENSION	
303	X-3686-532-5	ARM SUB ASSY, TENSION REGULATOR	
304	*X-3686-523-1	PLATE ASSY, TENSION REGULATOR	
305	3-669-666-00	SPRING, COMPRESSION	
306	X-3686-526-1	GEAR (B) ASSY, DRIVING	
307	X-3686-572-2	TABLE ASST, REEL, TAKE-UP	
308	X-3686-571-2	TABLE ASST, REEL, SUPPLY	
309	*3-686-630-01	ARM(B), SELECTION, UPPER & LOWER	
310	X-3686-581-1	ARM COMPLETE ASSY, DRIVING	
311	*3-686-637-01	BRAKE (S), SOFT	
312	3-696-082-01	SPRING, TENSION	
313	*3-686-760-01	GUIDE, BAND	
314	*A-7070-024-A	LD-1 BOARD, COMPLETE	
315	3-686-568-01	SPRING, TORSION	
316	3-686-885-01	SPRING, TENSION	
317	*3-686-641-01	ARM, PINCH PRESS	
318	3-669-465-00	WASHER (1.5), STOPPER	
319	*3-686-660-01	ARM, PINCH LIMITER	
320	*3-686-567-01	SLEEVE, PINCH PRESS	
321	*X-3686-525-1	HOOK ASSY, SPRING	
322	*X-3686-529-1	BASE ASSY, CHANGE GEAR	
323	X-3686-520-1	GEAR ASSY, CHANGE	
324	*3-686-596-01	FLANGE, GEAR	
325	*3-686-648-01	HOLDER, WIRE	
326	3-686-646-01	BELT, TIMIMG	
327	*3-686-991-01	STOPPER, REEL TABLE	
328	3-669-480-11	+ PTPWH 2	
329	3-701-436-11	WASHER, 1.6	
330	3-686-559-01	WASHER	
331	X-3686-590-1	BRAKE ASSY, REV	
332	3-697-546-01	SCREW (+-M2X6), SPECIAL	

5-8. CHASSIS ASSEMBLY 3

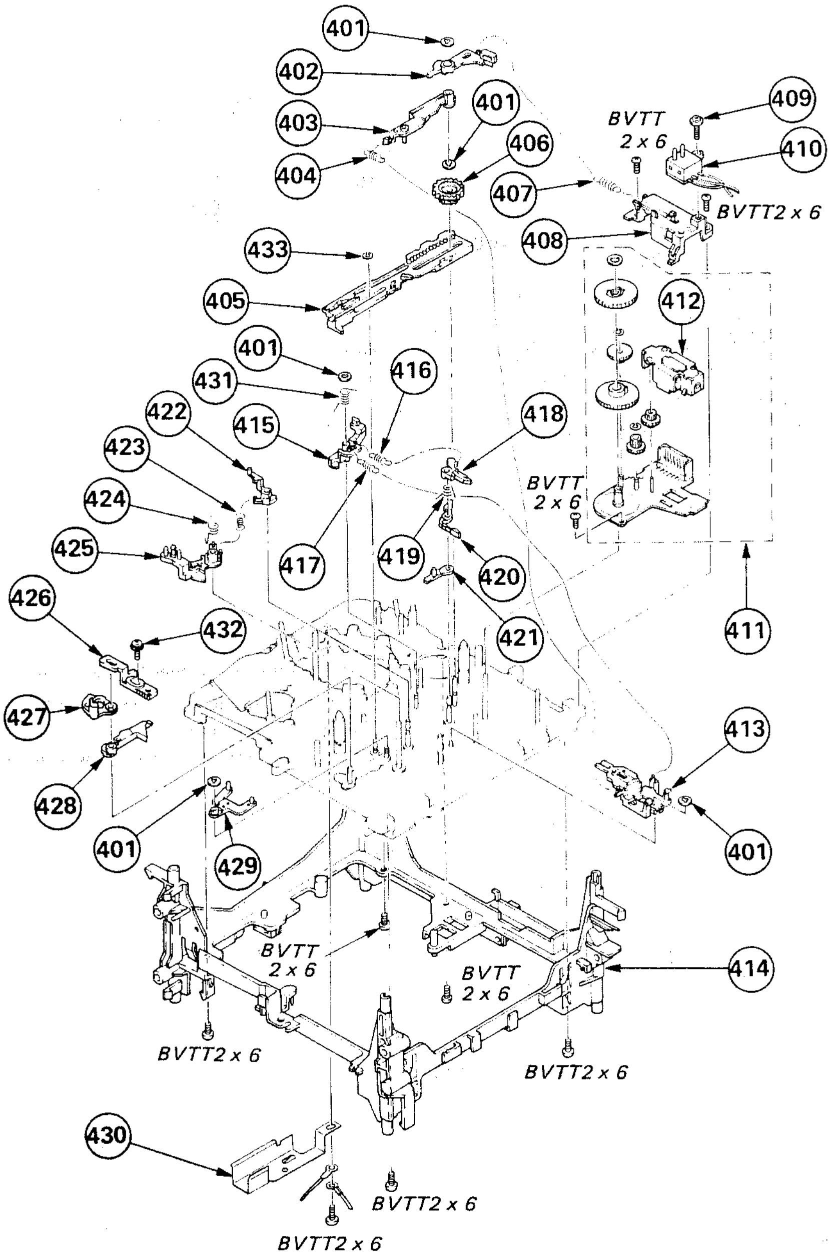

376
373
DUMPER
375
374
351
COLOR DOT
351
377
P2 x 3
378
P2 x 3
372
355
352
353
379
356
355
354
355
357
359
361
361
P2 x 4
366
358
363
364
P2 x 4
367
BVTT2 x 6
362
365
360
E2.3
370
368
369
371
BVTT2 x 6
BVTT2 x 6
372

Note:
The rotary upper drum is divided into 2 kinds depending on colour dots. See "Rotary Upper Drum Replacing" in the service manual, when replacing.

No.	Part No.	Description	Remark
351	X-3686-569-1	SCREW ASSY, FITTING	
352	3-686-702-01	GEAR, DRIVING, GUIDE, SLANT	
353	*X-3686-548-2	SLIDER SUB ASSY, L	
354	3-686-886-01	SPRING, TENSION	
355	3-669-465-00	WASHER (1.5), STOPPER	
356	*X-3686-518-1	ARM ASSY	
357	3-686-540-01	SPRING, TORSION	
358	X-3686-579-1	CHANGE ASSY, DRIVE	
359	X-3686-549-1	L-SW ASSY	
360	A-7040-053-A	GUIDE BLOCK COMPLETE ASSY, #5	361, 362
361	3-686-724-01	NUT, GUIDE	
362	3-686-889-01	SPRING, COMPRESSION	
363	*3-686-894-01	FLANGE, #3 #4 GUIDE	
364	3-686-912-01	GUIDE, #3 #4	
365	3-669-666-00	SPRING, COMPRESSION	
366	3-686-539-01	GEAR, NO.9	

No.	Part No.	Description	Remark
367	3-686-535-01	GEAR, NO.8	
368	*X-3686-509-1	LEVER ASSY, PINCH PRESS	
369	1-535-535-11	TERMINAL, SHAFT GROUND	
370	X-3686-521-1	BASE ASSY, IDLER	
371	X-3686-522-1	IDLER ASSY	
372	3-686-559-01	WASHER	
373	A-7048-004-A	DRUM ASSY (DVH-03A-R)	374-378
374	A-7049-005-B	DRUM ASSY, ROTARY UPPER (DVR-03-R) COLOUR DOT: BLUE OR RED	
	A-7049-012-A	DRUM ASSY, ROTARY UPPER (DVR-03-R-(O)) COLOUR DOT: BLACK OR GREEN	
375	3-686-403-01	SCREW (2X5), BOLT WASHER	
376	3-686-422-01	WASHER (2X2.7), BOLT, HOLE	
377	1-806-975-11	SENSOR, DEW CONDENSATION	
378	1-806-911-11	HEATER	
379	*3-688-917-01	STOPPER, TAPE	

5-9. CHASSIS ASSEMBLY 4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402
403
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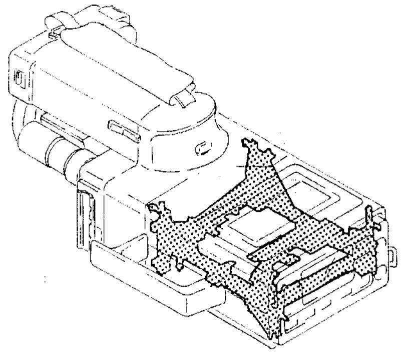
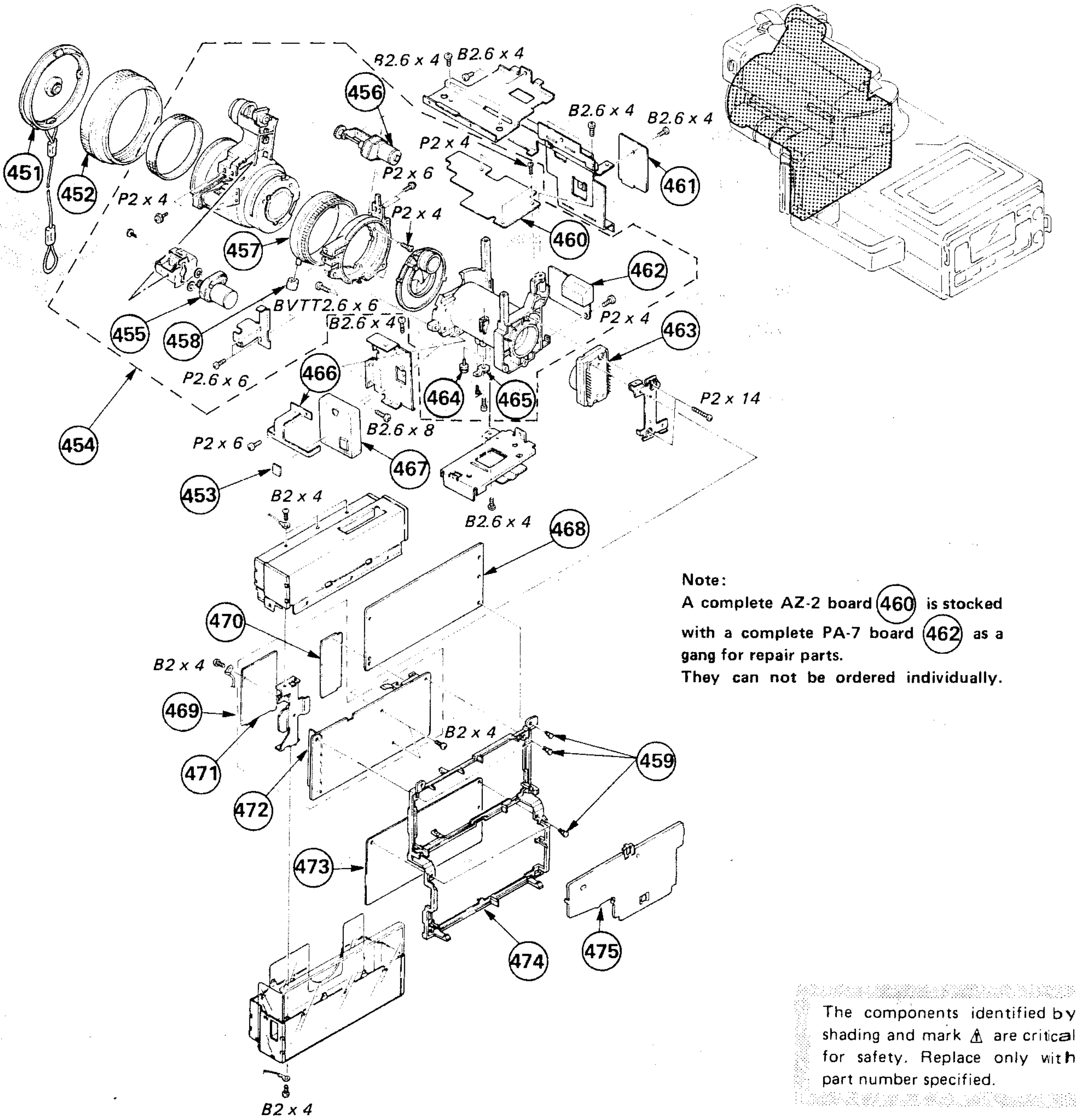
BVTT 2 x 6
BVTT2 x 6
433
405
401
431
416
422
415
423
418
BVTT 2 x 6
424
425
417
419
420
412
411
426
432
421
427
413
428
401
429
401
BVTT 2 x 6
BVTT 2 x 6
414
BVTT2 x 6
BVTT2 x 6
430
BVTT2 x 6
BVTT2 x 6



The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

No.	Part No.	Description	Remark
401	3-669-465-00	WASHER (1.5), STOPPER	
402	X-3686-511-1	BRAKE ASSY, T.S	
403	*X-3686-528-1	ARM ASSY, B RELEASE	
404	3-686-903-01	SPRING, TENSION	
405	*3-686-657-08	SLIDER, M	
406	3-686-909-01	GEAR, MODE OUTPUT	
407	3-686-907-01	SPRING, TENSION	
408	*3-686-759-01	COVER, CONTROL MOTOR	
409	3-669-480-11	+ PTPWH 2	
410	1-554-942-11	SWITCH, PUSH (RECOG) S902	
411	A-7040-003-A	M-SW ASSY	412
412	⚠8-835-110-01	MOTOR, DC (DNR-5301A) (CONTROL) M903	
413	*3-686-656-01	SLIDER, B RELEASE	
414	X-3686-554-2	FRAME ASSY, MOLD	
415	*3-686-634-01	ARM, RL	
416	3-686-906-01	SPRING, TENSION	
417	3-686-904-01	SPRING, TENSION	
418	X-3686-510-1	BRAKE ASSY, REW	
419	3-686-617-01	SPRING	
420	*3-686-638-01	ARM, RVS	
421	*3-686-580-01	ARM, SET UP	
422	3-686-996-01	BRAKE (S), HARD	
423	3-686-905-02	SPRING, TENSION	
424	3-686-603-01	SPRING	
425	*3-686-644-01	ARM, BAND	
426	*3-686-642-01	PLATE, ADJUSTMENT, BAND	
427	*3-686-755-01	DISK, EJECT	
428	*3-686-643-01	ARM, MODE	
429	*X-3686-530-1	ARM (A) ASSY, SELECTION	
430	*3-686-966-01	PLATE, SHIELD, HEAD LEAD	
431	3-686-579-01	SPRING	
432	3-686-528-01	SCREW (2X6), +	
433	3-686-559-01	WASHER	

5-10. CAMERA BLOCK ASSEMBLY

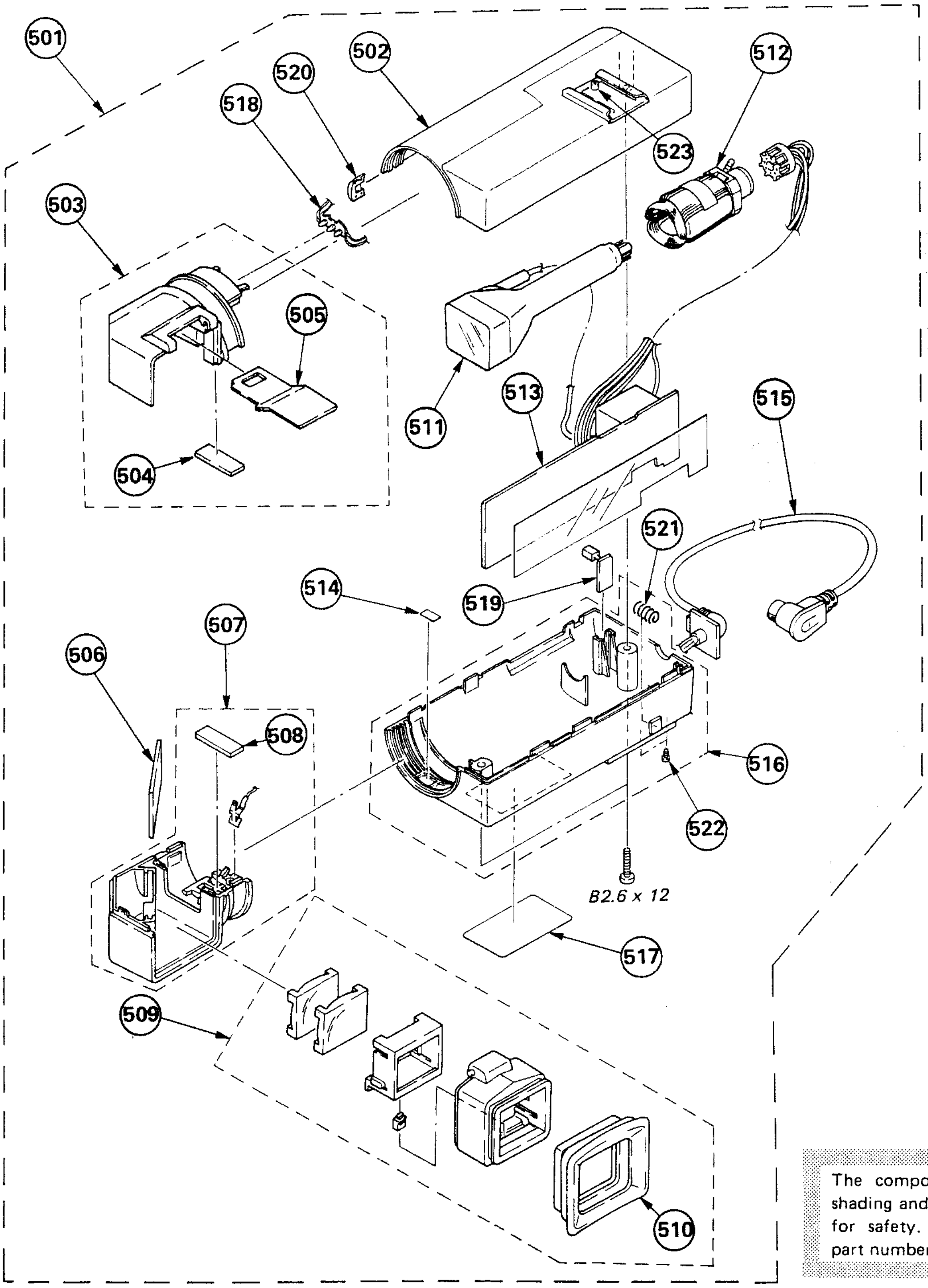

B2.6 x 4
B2.6 x 4
456
B2.6 x 4
B2.6 x 4
461
P2 x 4
P2 x 6
451
452
P2 x 4
P2 x 4
460
457
462
BVTT2.6 x 6
B2.6 x 4
P2 x 4
463
455
458
466
P2.6 x 6
464
465
P2 x 14
454
P2 x 6
B2.6 x 8
467
453
B2 x 4
B2.6 x 4
468
470
B2 x 4
469
B2 x 4
459
471
472
473
474
475
B2 x 4

Note:
A complete AZ-2 board ⑳ is stocked with a complete PA-7 board (462) as a gang for repair parts.
They can not be ordered individually.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

No.	Part No.	Description	Remark
451	*X-3686-677-1	CAP ASSY, HOOD	
452	3-696-004-01	HOOD	
453	9-911-839-XX	STOPPER, HALF	
454	1-547-183-11	LENS, ZOOM (VCL-1206YE)	455-458 460, 462, 464, 465
455 ⚠	8-835-127-01	F MOTOR (DNR-6300D)(FOCUS) M906	
456 ⚠	3-707-173-01	MOTOR UNIT, Z (DNR-6302A)(ZOOM) M904	
457	3-707-226-01	ZOOM RING UNIT	
458	3-707-225-01	CAP, ZOOM LEVER	
459	2-279-715-01	RIVET, NYLON	
460	*A-7060-204-A	AZ-2 BOARD, COMPLETE	
461	*A-7060-229-A	ZM-4 BOARD, COMPLETE	
462	*A-7060-204-A	PA-7 BOARD, COMPLETE	
463	8-750-010-23	CCD IMAGER BLOCK (IU021-K1AA)	
464	3-707-164-01	BRACE, FB ADJUSTMENT	
465	3-707-168-01	BRACKET, ADJUSTMENT, FB	
466	3-696-066-01	SPRING	
467 ⚠	1-464-377-21	CONVERTER, DC-DC (CAMERA) DR902	
468	*A-7060-174-A	ME-2 BOARD, COMPLETE	
469	*A-7060-171-A	CP-11 BOARD, COMPLETE	470, 472
470	*A-7050-173-A	OS-2 BOARD, COMPLETE	
471	*A-7050-172-A	DR-30 BOARD, COMPLETE	
472	*A-7070-128-A	VR-9 BOARD, COMPLETE	
473	*A-7060-247-A	AW-2 BOARD, COMPLETE	
474	*3-686-850-01	FRAME, CAMERA	
475	*X-3686-597-1	CASE ASSY, SHIELD, CP	

5-11. EVF (VF-206) (AEP, W.G MODEL) ASSEMBLY
EVF (VF-208) (UK MODEL) ASSEMBLY



The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

No.	Part No.	Description	Remark
501	A-7019-007-A	EVF (VF-206) (AEP,W.G MODEL)	502-523
	A-7019-011-A	EVF (VF-208) (UK MODEL)	502-523
502	X-3686-610-1	CABINET (UPPER) ASSY, EVF	523
503	X-3686-706-1	CABINET (UPPER) ASSY, CR	504, 505
504	9-911-840-XX	CUSHION, CRT	
505	3-688-956-01	SPRING	
506	3-688-959-01	MIRROR	
507	X-3686-612-1	CABINET (LOWER) ASSY, CR	508
508	9-911-840-XX	CUSHION, CRT	
509	X-3686-567-3	TABLE ASSY, LENS	510
510	3-696-016-01	EYE CAP	
511	⚠.1-546-051-11	CATHODE-RAY TUBE, B/W (C1M30P4) V901	
512	⚠.1-451-251-21	DEFLECTION YOKE (MONOCHROME) L901	
513	*A-7060-103-A	VF-4 BOARD, COMPLETE	
514	3-696-021-01	SPRING	
515	1-556-824-31	CORD, CONNECTION (WITH PLUG)	
516	X-3686-662-1	CABINET (LOWER) ASSY, EVF	521, 523
517	*3-688-962-01	LABEL, MODEL NUMBER, EVF (AEP,W. G MODEL)	
	*3-693-251-01	LABEL, MODEL NUMBER, EVF (UK MODEL)	
518	*1-614-872-11	TL-16 BOARD	
519	*1-614-871-11	TL-15 BOARD	
520	3-688-978-01	PLATE, ORNAMENTAL	
521	3-565-923-00	SPRING, COMPRESSION	
522	3-693-247-01	SCREW (M2) (C LOCK), +K	
523	3-678-103-11	SCREW, EVF STOPPER	

5-12. HARDWARE LIST

SCREW

3-693-247-01	SCREW +K 2X4
7-621-255-20	SCREW +P 2X4
7-621-255-45	SCREW +P 2X6
7-621-255-50	SCREW +P 2X8
7-621-255-75	SCREW +P 2X12
7-621-255-85	SCREW +P 2X14
7-621-772-08	SCREW +B 2X3
7-621-772-18	SCREW +B 2X4
7-621-772-30	SCREW +B 2X6
7-621-772-38	SCREW +B 2X6
7-621-772-50	SCREW +B 2X10
7-621-772-58	SCREW +B 2X10
7-621-773-86	SCREW +B 2.6X4
7-621-773-95	SCREW +B 2.6X6
7-621-775-10	SCREW +B 2.6X4
7-685-107-11	SCREW +P 2X12 TYPE2 NON-SLIT
7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S
7-685-535-14	SCREW +BTP 2.6X10 TYPE2 N-S
7-685-536-19	SCREW +BTP 2.6X12 TYPE2 N-S
7-685-780-01	SCREW +PTT 2X3 (S)
7-685-853-01	SCREW +BVTT 2X6 (S)

LUG

7-623-505-01	LUG, 2

STOP RING

7-624-101-01	STOP RING 1.2 (E TYPE)
7-624-102-04	STOP RING 1.5, TYPE -E
7-624-105-04	STOP RING 2.3, TYPE -E
7-624-106-04	STOP RING 3.0, TYPE -E

PRECISION SCREW

7-627-551-58	SCREW, PRECISION +P 1.4X3
7-627-553-48	SCREW, PRECISION +P 2X4
7-627-850-18	SCREW, PRECISION +P 1.4X2.5

WASHER

7-688-002-11	W 2.6, MIDDLE

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS

- All resistors are in ohms
- F : nonflammable

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

CAPACITORS

- MF : μF, PF : μμF

COILS

- MMH : mH, UH : μH

Ref No.	Part No.	Description				Remark
	*A-7060-247-A	AW-2 BOARD, COMPLETE ********************				
		CAPACITOR				
C702	1-123-661-00	ELECT	100MF	20%	6.3V	
C703	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C704	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C705	1-123-608-00	ELECT	0.22MF	20%	50V	
C706	1-131-378-00	TANTALUM	15MF	10%	10V	
C717	1-131-408-00	TANTALUM	1MF	20%	25V	
C719	1-124-225-00	ELECT	100MF	20%	6.3V	
C720	1-123-611-00	ELECT	1MF	20%	50V	
C721	1-123-661-00	ELECT	100MF	20%	6.3V	
C722	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V	
C723	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V	
C724	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V	
C725	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C726	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C727	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C728	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C729	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C730	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C732	1-163-129-00	CERAMIC CHIP	330PF	5%	50V	
C733	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C734	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V	
C735	1-131-374-00	TANTALUM	33MF	20%	16V	
C742	1-124-270-11	ELECT	0.47MF	20%	50V	
C743	1-124-270-11	ELECT	0.47MF	20%	50V	
C744	1-135-096-21	TANTAL. CHIP	4.7MF	20%	10V	
C746	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C747	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C748	1-135-096-21	TANTAL. CHIP	4.7MF	20%	10V	
C749	1-124-275-00	ELECT	2.2MF	20%	35V	
C750	1-163-075-00	CERAMIC CHIP	0.047MF	10%	25V	
C751	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C752	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C753	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C755	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C756	1-124-225-00	ELECT	100MF	20%	6.3V	
C757	1-123-661-00	ELECT	100MF	20%	6.3V	
C758	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C759	1-124-236-00	ELECT	47MF	20%	16V	
C760	1-124-236-00	ELECT	47MF	20%	16V	
C761	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C762	1-124-234-00	ELECT	22MF	20%	16V	
C763	1-124-234-00	ELECT	22MF	20%	16V	
C764	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C765	1-123-620-00	ELECT	10MF	20%	35V	
C766	1-123-620-00	ELECT	10MF	20%	35V	
C767	1-124-229-00	ELECT	33MF	20%	6.3V	
C768	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C769	1-135-096-21	TANTAL. CHIP	4.7MF	20%	10V	

Ref No.	Part No.	Description	Remark
		CONNECTOR	
CN701	*1-564-018-11	PIN, CONNECTOR 8P	
CN702	*1-564-016-00	PIN, CONNECTOR 6P	
CN703	*1-564-014-00	PIN, CONNECTOR 4P	
		DIODE	
D702	8-719-100-05	DIODE 1S2837	
D706	8-719-100-05	DIODE 1S2837	
D708	8-719-100-05	DIODE 1S2837	
D709	8-719-100-05	DIODE 1S2837	
D710	8-719-100-03	DIODE 1S2835	
D711	8-719-100-05	DIODE 1S2837	
D715	8-719-101-23	DIODE 1SS123	
D716	8-719-100-05	DIODE 1S2837	
D717	8-719-100-05	DIODE 1S2837	
		IC	
IC701	8-759-201-00	IC TC4052BF	
IC703	8-759-103-03	IC UPD6107G	
IC705	8-759-100-94	IC UPC358G2	
IC706	8-759-908-12	IC CX20056	
		COIL	
L708	1-410-124-11	COIL, CHOKE 47UH	
L709	1-410-124-11	COIL, CHOKE 47UH	
L710	1-408-970-21	MICRO INDUCTOR 10UH	
L711	1-408-970-21	MICRO INDUCTOR 10UH	
		TRANSISTOR	
Q704	8-729-901-03	TRANSISTOR DTC144WK	
Q707	8-729-901-04	TRANSISTOR DTA114EK	
Q708	8-729-901-04	TRANSISTOR DTA114EK	
Q709	8-729-100-66	TRANSISTOR 2SC1623	
Q710	8-729-100-76	TRANSISTOR 2SA812	
Q711	8-729-100-76	TRANSISTOR 2SA812	
Q712	8-729-100-66	TRANSISTOR 2SC1623	
Q713	8-729-100-76	TRANSISTOR 2SA812	
Q714	8-729-100-76	TRANSISTOR 2SA812	
Q715	8-729-100-66	TRANSISTOR 2SC1623	
Q716	8-729-100-76	TRANSISTOR 2SA812	
Q717	8-729-901-04	TRANSISTOR DTA114EK	
Q718	8-729-100-76	TRANSISTOR 2SA812	
Q721	8-729-100-66	TRANSISTOR 2SC1623	
Q722	8-729-100-66	TRANSISTOR 2SC1623	
Q723	8-729-901-03	TRANSISTOR DTC144WK	
Q724	8-729-100-76	TRANSISTOR 2SA812	
Q725	8-729-100-66	TRANSISTOR 2SC1623	
Q726	8-729-100-66	TRANSISTOR 2SC1623	
Q728	8-729-901-03	TRANSISTOR DTC144WK	
Q729	8-729-901-04	TRANSISTOR DTA114EK	
Q730	8-729-100-76	TRANSISTOR 2SA812	
Q732	8-729-901-03	TRANSISTOR DTC144WK	
Q733	8-729-100-76	TRANSISTOR 2SA812	

Ref.No	Part No.	Description				Remark
Q734	8-729-100-66	TRANSISTOR 2SC1623				

RESISTOR

Ref.No	Part No.	Description				Remark
R704	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R705	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R707	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R708	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R709	1-216-035-00	METAL CHIP	270	5%	1/10W	
R712	1-216-107-00	METAL CHIP	270K	5%	1/10W	
R714	1-216-035-00	METAL CHIP	270	5%	1/10W	
R715	1-216-021-00	METAL CHIP	68	5%	1/10W	
R716	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R717	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R718	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R719	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R722	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R723	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R724	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R725	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R726	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R727	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R728	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R729	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R730	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R731	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R732	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R733	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R734	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R735	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R736	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R737	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R738	1-216-087-00	METAL CHIP	39K	5%	1/10W	
R739	1-216-087-00	METAL CHIP	39K	5%	1/10W	
R740	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R741	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R742	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R743	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R744	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R745	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R746	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R747	1-216-099-00	METAL CHIP	120K	5%	1/10W	
R748	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R749	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R750	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R751	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R753	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R755	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R756	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R757	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R759	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R760	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R761	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R762	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R763	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R764	1-216-101-00	METAL CHIP	150K	5%	1/10W	
R765	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R766	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R767	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R768	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R769	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R771	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R772	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R775 ⚠	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R778	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R780	1-216-125-00	METAL CHIP	1.5M	5%	1/10W	
R781	1-216-107-00	METAL CHIP	270K	5%	1/10W	
R784	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R785	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R786	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R787	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R788	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R794	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R795	1-216-085-00	METAL CHIP	33K	5%	1/10W	

VARIABLE RESISTOR

Ref.No	Part No.	Description		Remark
RV701	1-228-829-21	RES, ADJ, METAL GLAZE	10K	
RV702	1-228-829-21	RES, ADJ, METAL GLAZE	10K	
RV703	1-228-829-21	RES, ADJ, METAL GLAZE	10K	
RV704	1-228-829-21	RES, ADJ, METAL GLAZE	10K	
RV706	1-228-829-21	RES, ADJ, METAL GLAZE	10K	
RV707	1-228-829-21	RES, ADJ, METAL GLAZE	10K	
RV708	1-228-829-21	RES, ADJ, METAL GLAZE	10K	
RV709	1-228-827-21	RES, ADJ, METAL GLAZE	2.2K	
RV710	1-228-828-21	RES, ADJ, METAL GLAZE	4.7K	
RV711	1-228-877-00	RES, ADJ, METAL GLAZE	100K	

****

*A-7060-171-A CP-11 BOARD, COMPLETE
****

IC701 or IC706 is not mounted on the mounted CP-11 Board. Each of these ICs cannot be a repair-replacement part, but becomes a CCD imager block.

CAPACITOR

Ref.No	Part No.	Description				Remark
C702	1-163-109-00	CERAMIC CHIP	47MF	5%	50V	
C703	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C704	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C705	1-124-229-00	ELECT	33MF	20%	10V	
C706	1-135-092-21	TANTAL.CHIP	3.3MF	20%	16V	
C707	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V	
C708	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C709	1-135-096-21	TANTAL.CHIP	4.7MF	20%	10V	
C722	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C723	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C724	1-135-091-00	TANTAL.CHIP	1MF	20%	16V	
C725	1-135-091-00	TANTAL.CHIP	1MF	20%	16V	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description		Remark
C726	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C727	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C728	1-135-083-00	TANTAL. CHIP 0.47MF	20%	25V
C729	1-135-083-00	TANTAL. CHIP 0.47MF	20%	25V
C730	1-135-083-00	TANTAL. CHIP 0.47MF	20%	25V
C731	1-135-083-00	TANTAL. CHIP 0.47MF	20%	25V
C732	1-135-083-00	TANTAL. CHIP 0.47MF	20%	25V
C733	1-135-083-00	TANTAL. CHIP 0.47MF	20%	25V
C734	1-135-083-00	TANTAL. CHIP 0.47MF	20%	25V
C735	1-135-083-00	TANTAL. CHIP 0.47MF	20%	25V
C736	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C737	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C738	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C739	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C740	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C741	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C742	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C743	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C744	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C745	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C748	1-135-096-21	TANTAL. CHIP 4.7MF	20%	10V
C749	1-163-100-00	CERAMIC CHIP 20PF	5%	50V
C750	1-124-229-00	ELECT 33MF	20%	10V
C751	1-163-100-00	CERAMIC CHIP 20PF	5%	50V
C752	1-123-645-00	ELECT 33MF	20%	10V
C753	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C754	1-163-100-00	CERAMIC CHIP 20PF	5%	50V
C755	1-123-645-00	ELECT 33MF	20%	10V
C756	1-135-096-21	TANTAL. CHIP 4.7MF	20%	10V
C757	1-124-234-00	ELECT 22MF	20%	16V
C758	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C759	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C760	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C761	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C762	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C763	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C764	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C765	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C766	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C769	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C770	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C771	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C782	1-135-083-00	TANTAL. CHIP 0.47MF	20%	25V
C783	1-135-083-00	TANTAL. CHIP 0.47MF	20%	25V
C784	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C785	1-163-125-00	CERAMIC CHIP 220PF	5%	50V
C786	1-135-092-21	TANTAL. CHIP 3.3MF	20%	16V
C798	1-163-205-00	CERAMIC CHIP 0.001MF	5%	50V
C803	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C804	1-163-105-00	CERAMIC CHIP 33PF	5%	50V
C806	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V
C821	1-163-127-00	CERAMIC CHIP 270PF	5%	50V
C823	1-163-109-00	CERAMIC CHIP 47PF	5%	50V

Ref.No	Part No.	Description		Remark
C824	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C825	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C826	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
		CONNECTOR		
CN008	1-564-549-11	PIN, BOARD TO BOARD(L TYPE)10P		
CN014	1-564-549-11	PIN, BOARD TO BOARD(L TYPE)10P		
		DIODE		
D706	8-719-100-05	DIODE 1S2837		
D707	8-719-100-05	DIODE 1S2837		
D708	8-719-100-05	DIODE 1S2837		
D711	8-719-100-03	DIODE 1S2835		
D712	8-719-100-05	DIODE 1S2837		
D713	8-719-100-05	DIODE 1S2837		
D716	8-719-100-03	DIODE 1S2835		
		IC		
IC701	8-750-010-23	CCD IMAGER BLOCK (IU021-K1AA)		
IC705	8-759-000-26	IC MMH0026CP1		
IC706	8-750-010-23	CCD IMAGER BLOCK (IU021-K1AA)		
IC707	8-759-922-28	IC CX23047B		
IC708	8-757-930-02	IC CX7930-1		
IC709	8-759-908-09	IC CX20053		
		COIL		
L701	1-408-960-21	MICRO INDUCTOR 1.5UH		
L702	1-543-256-11	BEAD, FERRITE		
L703	1-543-256-11	BEAD, FERRITE		
		TRANSISTOR		
Q701	8-729-100-76	TRANSISTOR 2SA812		
Q703	8-729-100-66	TRANSISTOR 2SC1623		
Q704	8-729-100-66	TRANSISTOR 2SC1623		
Q705	8-729-900-53	TRANSISTOR DTC114EK		
Q706	8-729-900-53	TRANSISTOR DTC114EK		
Q707	8-729-900-53	TRANSISTOR DTC114EK		
Q708	8-729-109-44	TRANSISTOR 2SK94		
Q709	8-729-109-44	TRANSISTOR 2SK94		
Q710	8-729-109-44	TRANSISTOR 2SK94		
Q714	8-729-100-66	TRANSISTOR 2SC1623		
Q715	8-729-100-76	TRANSISTOR 2SA812		
Q716	8-729-122-63	TRANSISTOR 2SA1226		
Q717	8-729-102-08	TRANSISTOR 2SC2223-F14		
		RESISTOR		
R702	1-216-057-00	METAL CHIP 2.2K	5%	1/10W
R703	1-216-097-00	METAL CHIP 100K	5%	1/10W
R704	1-216-065-00	METAL CHIP 4.7K	5%	1/10W
R705	1-216-057-00	METAL CHIP 2.2K	5%	1/10W
R706	1-216-097-00	METAL CHIP 100K	5%	1/10W
R708	1-216-097-00	METAL CHIP 100K	5%	1/10W

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
R709	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R710	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R713	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R714	1-216-091-00	METAL CHIP 56K 5% 1/10W	
R715	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R716	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R717	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R718	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R728	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R729	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R730	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R731	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R732	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R733	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R734	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R735	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R736	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R737	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R738	1-216-009-00	METAL CHIP 22 5% 1/10W	
R739	1-216-009-00	METAL CHIP 22 5% 1/10W	
R740	1-216-013-00	METAL CHIP 33 5% 1/10W	
R741	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R742	1-216-025-00	METAL CHIP 100 5% 1/10W	
R743	1-216-066-00	METAL CHIP 5.1K 5% 1/10W	
R744	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R745	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R746	1-216-087-00	METAL CHIP 39K 5% 1/10W	
R747	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R749	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R751	1-216-033-00	METAL CHIP 220 5% 1/10W	
R752	1-216-033-00	METAL CHIP 220 5% 1/10W	
R753	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R754	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R755	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R758	1-216-033-00	METAL CHIP 220 5% 1/10W	
R759	1-216-033-00	METAL CHIP 220 5% 1/10W	
R760	1-216-033-00	METAL CHIP 220 5% 1/10W	
R761	1-216-066-00	METAL CHIP 5.1K 5% 1/10W	
R762	1-216-088-00	METAL CHIP 43K 5% 1/10W	
R764	1-216-033-00	METAL CHIP 220 5% 1/10W	
R766	1-216-066-00	METAL CHIP 5.1K 5% 1/10W	
R767	1-216-033-00	METAL CHIP 220 5% 1/10W	
R769	1-216-066-00	METAL CHIP 5.1K 5% 1/10W	
R770	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R771	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R772	1-216-088-00	METAL CHIP 43K 5% 1/10W	
R773	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R774	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R775	1-216-041-00	METAL CHIP 470 5% 1/10W	
R777	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R782	1-216-295-00	METAL CHIP 0 5% 1/10W	
R783	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R784	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	

Ref.No	Part No.	Description	Remark
R785	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R799	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R800	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R822	1-216-025-00	METAL CHIP 100 5% 1/10W	
R823	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R826	1-216-295-00	METAL CHIP 0 5% 1/10W	
R830	1-216-095-00	METAL CHIP 82K 5% 1/10W	
R832 ⚠	1-216-025-91	METAL CHIP 100 5% 1/10W	
R834	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R835	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R836	1-216-295-00	METAL CHIP 0 5% 1/10W	

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*A-7050-172-A DR-30 BOARD, COMPLETE
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*3-686-930-01 HEAT SINK
7-621-772-18 SCREW +B 2X4

CAPACITOR

Ref.No	Part No.	Description	Remark
C711	1-124-233-00	ELECT 10MF 20% 16V	
C712	1-135-076-21	TANTAL. CHIP 1MF 20% 35V	
C713	1-135-092-21	TANTAL. CHIP 3.3MF 20% 16V	
C714	1-135-092-21	TANTAL. CHIP 3.3MF 20% 16V	
C715	1-123-613-00	ELECT 3.3MF 20% 50V	
C716	1-123-613-00	ELECT 3.3MF 20% 50V	
C717	1-135-092-21	TANTAL. CHIP 3.3MF 20% 16V	
C718	1-135-083-00	TANTAL. CHIP 0.47MF 20% 25V	
C719	1-135-083-00	TANTAL. CHIP 0.47MF 20% 25V	
C720	1-135-083-00	TANTAL. CHIP 0.47MF 20% 25V	
C721	1-135-083-00	TANTAL. CHIP 0.47MF 20% 25V	
C781	1-135-091-00	TANTAL. CHIP 1MF 20% 16V	
C787	1-135-083-00	TANTAL. CHIP 0.47MF 20% 25V	
C788	1-163-141-00	CERAMIC CHIP 0.001MF 10% 50V	
C789	1-163-141-00	CERAMIC CHIP 0.001MF 10% 50V	
C800	1-163-077-00	CERAMIC CHIP 0.1MF 50V	
C801	1-163-077-00	CERAMIC CHIP 0.1MF 50V	
C802	1-163-077-00	CERAMIC CHIP 0.1MF 50V	

DIODE

Ref.No	Part No.	Description	Remark
D701	8-719-100-03	DIODE 1S2835	
D702	8-719-101-23	DIODE 1SS123	
D703	8-719-951-12	DIODE HZ5BLL	
D704	8-719-100-03	DIODE 1S2835	
D705	8-719-100-03	DIODE 1S2835	
D714	8-719-100-03	DIODE 1S2835	
D715	8-719-100-03	DIODE 1S2835	

IC

Ref.No	Part No.	Description	Remark
IC702	8-759-953-61	IC SN75361AP	
IC703	8-759-953-61	IC SN75361AP	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q702	8-729-100-66	TRANSISTOR 2SC1623	
Q718	8-729-100-76	TRANSISTOR 2SA812	
Q719	8-729-100-66	TRANSISTOR 2SC1623	
Q720	8-729-100-76	TRANSISTOR 2SA812	
Q721	8-729-100-76	TRANSISTOR 2SA812	
Q722	8-729-100-66	TRANSISTOR 2SC1623	
Q726 ⚠	8-729-901-04	TRANSISTOR DTA114EK	
Q727 ⚠	8-729-901-03	TRANSISTOR DTC144WK	

RESISTOR

Ref.No	Part No.	Description	Remark
R711	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R712	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R719	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R720	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R721	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R722	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R723	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R802	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R803	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R804	1-216-043-00	METAL CHIP 560 5% 1/10W	
R805	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R807	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R820	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R821	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R828 ⚠	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R829 ⚠	1-216-075-00	METAL CHIP 12K 5% 1/10W	

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*A-7050-173-A OS-2 BOARD, COMPLETE

CAPACITOR

Ref.No	Part No.	Description	Remark
C710	1-135-096-21	TANTAL. CHIP 4.7MF 20% 10V	
C772	1-163-077-00	CERAMIC CHIP 0.1MF 50V	
C773	1-135-095-00	TANTAL. CHIP 1.5MF 20% 10V	
C774	1-163-141-00	CERAMIC CHIP 0.001MF 5% 50V	
C775	1-163-221-00	CERAMIC CHIP 4PF 0.25PF 50V	
C776	1-163-258-91	CERAMIC CHIP 200PF 5% 50V	
C777	1-163-119-00	CERAMIC CHIP 120PF 5% 50V	
C779	1-163-261-11	CERAMIC CHIP 270PF 5% 50V	
C780	1-163-141-00	CERAMIC CHIP 0.001MF 5% 50V	

DIODE

Ref.No	Part No.	Description	Remark
D710	8-713-220-00	DIODE 1T32-2	
D717	8-719-101-23	DIODE 1SS123	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q711	8-729-100-66	TRANSISTOR 2SC1623	
Q712	8-729-162-13	TRANSISTOR 2SC1621	

RESISTOR

Ref.No	Part No.	Description	Remark
R786	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R787	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R788	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R789	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R790	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R791	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R792	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R795	1-216-041-00	METAL CHIP 470 5% 1/10W	
R798	1-216-033-00	METAL CHIP 220 5% 1/10W	

CRYSTAL

Ref.No	Part No.	Description	Remark
X701	1-567-343-11	OSCILLATOR, CRYSTAL (28.4MHZ)	
X702	1-567-344-21	VIBRATOR, CRYSTAL (VCO) (17.7MHZ)	

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*A-7070-128-A VR-9 BOARD, COMPLETE

CAPACITOR

Ref.No	Part No.	Description	Remark
C746	1-124-229-00	ELECT 33MF 20% 10V	
C747	1-124-229-00	ELECT 33MF 20% 10V	

DIODE

Ref.No	Part No.	Description	Remark
D709	8-719-100-05	DIODE 1S2837	

RESISTOR

Ref.No	Part No.	Description	Remark
R748	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R750	1-216-083-00	METAL CHIP 27K 5% 1/10W	

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV701	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV702	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV703	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV704	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV705	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV706	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV707	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV708	1-228-830-21	RES, ADJ, METAL GLAZE 22K	

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*A-7060-174-A ME-2 BOARD, COMPLETE

CAPACITOR

Ref.No	Part No.	Description	Remark
C701	1-135-091-00	TANTAL. CHIP 1MF 20% 16V	
C702	1-163-077-00	CERAMIC CHIP 0.1MF 50V	
C703	1-135-092-21	TANTAL. CHIP 3.3MF 20% 16V	
C704	1-124-234-00	ELECT 22MF 20% 16V	
C705	1-135-096-21	TANTAL. CHIP 4.7MF 20% 10V	
C706	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description		Remark
C707	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C708	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C709	1-135-095-00	TANTAL. CHIP 1.5MF	20%	10V
C710	1-135-096-21	TANTAL. CHIP 4.7MF	20%	10V
C711	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C712	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C713	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C714	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C715	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C716	1-135-096-21	TANTAL. CHIP 4.7MF	20%	10V
C717	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C718	1-131-374-00	TANTALUM 33MF	20%	16V
C719	1-163-125-00	CERAMIC CHIP 220PF	5%	50V
C720	1-163-121-00	CERAMIC CHIP 150PF	5%	50V
C721	1-163-107-00	CERAMIC CHIP 39PF	5%	50V
C722	1-131-374-00	TANTALUM 33MF	20%	16V
C723	1-163-119-00	CERAMIC CHIP 120PF	5%	50V
C724	1-163-118-00	CERAMIC CHIP 110PF	5%	50V
C725	1-163-122-00	CERAMIC CHIP 160PF	5%	50V
C726	1-163-112-00	CERAMIC CHIP 62PF	5%	50V
C727	1-163-119-00	CERAMIC CHIP 120PF	5%	50V
C728	1-163-118-00	CERAMIC CHIP 110PF	5%	50V
C729	1-163-122-00	CERAMIC CHIP 160PF	5%	50V
C730	1-163-112-00	CERAMIC CHIP 62PF	5%	50V
C731	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C732	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C733	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C734	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C735	1-123-616-00	ELECT 4.7MF	20%	16V
C736	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C737	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C739	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C740	1-163-013-00	CERAMIC CHIP 0.0022MF	10%	50V
C741	1-124-225-00	ELECT 100MF	20%	6.3V
C742	1-124-225-00	ELECT 100MF	20%	6.3V
C743	1-123-245-00	ELECT 4.7MF	20%	16V
C744	1-123-645-00	ELECT 33MF	20%	10V
C745	1-124-287-00	ELECT 10MF	20%	10V
C746	1-124-287-00	ELECT 10MF	20%	10V
C747	1-123-245-00	ELECT 4.7MF	20%	16V
C748	1-163-121-00	CERAMIC CHIP 150PF	5%	50V
C749	1-124-255-00	ELECT 1MF	20%	50V
C750	1-124-255-00	ELECT 1MF	20%	50V
C751	1-123-611-00	ELECT 1MF	20%	50V
C754	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C755	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C756	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C757	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C758	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C759	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C760	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C761	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C762	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C763	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C764	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C767	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C768	1-163-113-00	CERAMIC CHIP 68PF	5%	50V
C769	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C770	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V

CONNECTOR

Ref.No	Part No.	Description
CN704	*1-564-017-00	PIN, CONNECTOR 7P
CN705	*1-564-018-11	PIN, CONNECTOR 8P

DIODE

Ref.No	Part No.	Description
D701	8-719-100-05	DIODE 1S2837
D703	8-719-100-05	DIODE 1S2837

DELAY LINE

Ref.No	Part No.	Description
DL701	1-415-238-00	DELAY LINE

FILTER

Ref.No	Part No.	Description
FL701	1-235-442-11	FILTER, LOW PASS (YH)
FL702	1-235-439-11	FILTER, BAND PASS (4.43MHZ)

IC

Ref.No	Part No.	Description
IC701	8-752-303-90	IC CX23039
IC702	8-752-015-10	IC CX20151
IC703	8-759-908-11	IC CX20055
IC704	8-759-908-15	IC TL431CLP

COIL

Ref.No	Part No.	Description
L701	1-408-960-21	MICRO INDUCTOR 1.5UH
L702	1-408-960-21	MICRO INDUCTOR 1.5UH

TRANSISTOR

Ref.No	Part No.	Description
Q701	8-729-100-66	TRANSISTOR 2SC1623
Q702	8-729-100-66	TRANSISTOR 2SC1623
Q703	8-729-100-66	TRANSISTOR 2SC1623
Q704	8-729-100-66	TRANSISTOR 2SC1623
Q705	8-729-100-66	TRANSISTOR 2SC1623
Q706	8-729-100-66	TRANSISTOR 2SC1623
Q707	8-729-100-66	TRANSISTOR 2SC1623
Q708	8-729-100-66	TRANSISTOR 2SC1623
Q709	8-729-100-66	TRANSISTOR 2SC1623
Q710	8-729-100-66	TRANSISTOR 2SC1623
Q711	8-729-100-66	TRANSISTOR 2SC1623
Q712	8-729-100-66	TRANSISTOR 2SC1623
Q713	8-729-100-66	TRANSISTOR 2SC1623
Q715	8-729-901-03	TRANSISTOR DTC144WK
Q716	8-729-901-03	TRANSISTOR DTC144WK
Q717	8-729-901-03	TRANSISTOR DTC144WK
Q718	8-729-900-99	TRANSISTOR DTA144WK
Q719	8-729-901-03	TRANSISTOR DTC144WK
Q720	⚠8-729-901-04	TRANSISTOR DTA114EK

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
Q721 ⚠	8-729-901-03	TRANSISTOR DTC144WK	
Q722	8-729-100-66	TRANSISTOR 2SC1623	

RESISTOR

Ref.No	Part No.	Description				Remark
R701	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R703	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R704	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R706	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R707	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R708	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R709	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R710	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R711	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R712	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R713	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R714	1-216-068-00	METAL CHIP	6.2K	5%	1/10W	
R716	1-216-056-00	METAL CHIP	2K	5%	1/10W	
R717	1-216-056-00	METAL CHIP	2K	5%	1/10W	
R718	1-216-056-00	METAL CHIP	2K	5%	1/10W	
R719	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R720	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R721	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R722	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R723	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R724	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R725	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R726	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R727	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R728	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R729	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R730	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R731	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R732	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R733	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R734	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R735	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R736	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R737	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R738	1-216-082-00	METAL CHIP	24K	5%	1/10W	
R739	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R740	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R741	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R742	1-216-037-00	METAL CHIP	330	5%	1/10W	
R744	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R745	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R746	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R747	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R749	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R750	1-216-087-00	METAL CHIP	39K	5%	1/10W	
R751	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R752	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R753	1-216-018-00	METAL CHIP	51	5%	1/10W	
R754	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R755	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R756	1-216-035-00	METAL CHIP	270	5%	1/10W	
R760	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R761	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R762	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R763	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R764 ⚠	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R765 ⚠	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R766	1-216-025-00	METAL CHIP	100	5%	1/10W	
R767	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R768	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R769	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R770	1-216-079-00	METAL CHIP	18K	5%	1/10W	

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV701	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV702	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV703	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV704	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV705	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV706	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV707	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV708	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV709	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV710	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV711	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV712	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV713	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV714	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV715	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV716	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV717	1-228-829-21	RES, ADJ, METAL GLAZE 10K	
RV718	1-228-829-21	RES, ADJ, METAL GLAZE 10K	

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*A-7060-260-A	VI-7 BOARD, COMPLETE	
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2-279-715-21	RIVET, NYLON	
3-686-934-01	REINFORCEMENT (A), FLAT CABLE	

CAPACITOR

Ref.No	Part No.	Description			
C101	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C102	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C103	1-163-257-00	CERAMIC CHIP	180PF	5%	50V
C104	1-163-033-00	CERAMIC CHIP	0.022MF		50V
C105	1-163-033-00	CERAMIC CHIP	0.022MF		50V
C106	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C107	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C108	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C109	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C110	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C111	1-163-113-00	CERAMIC CHIP	68PF	5%	50V

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VI-7

Ref.No	Part No.	Description		Remark
C112	1-163-103-00	CERAMIC CHIP 27PF	5%	50V
C113	1-163-033-00	CERAMIC CHIP 0.022MF		50V
C114	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C115	1-135-096-21	TANTAL. CHIP 4.7MF	10%	10V
C116	1-135-096-21	TANTAL. CHIP 4.7MF	10%	10V
C117	1-124-442-00	ELECT 330MF	20%	6.3V
C118	1-135-091-00	TANTAL. CHIP 1MF	10%	16V
C119	1-163-033-00	CERAMIC CHIP 0.022MF		50V
C131	1-135-072-21	TANTAL. CHIP 0.22MF	10%	35V
C132	1-135-100-21	TANTAL. CHIP 6.8MF	10%	6.3V
C133	1-135-099-00	TANTAL. CHIP 2.2MF	10%	6.3V
C134	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C135	1-135-099-00	TANTAL. CHIP 2.2MF	10%	6.3V
C136	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C137	1-135-100-21	TANTAL. CHIP 6.8MF	10%	6.3V
C139	1-163-129-00	CERAMIC CHIP 330PF	5%	50V
C141	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C142	1-163-133-00	CERAMIC CHIP 470PF	5%	50V
C143	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C144	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C145	1-163-137-00	CERAMIC CHIP 680PF	10%	50V
C146	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C147	1-135-100-21	TANTAL. CHIP 6.8MF	10%	6.3V
C148	1-135-100-21	TANTAL. CHIP 6.8MF	10%	6.3V
C149	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C150	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C151	1-135-104-00	TANTAL. CHIP 10MF	10%	4V
C152	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C153	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C154	1-163-111-00	CERAMIC CHIP 56PF	5%	50V
C155	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C165	1-135-096-21	TANTAL. CHIP 4.7MF	10%	10V
C167	1-135-096-21	TANTAL. CHIP 4.7MF	10%	10V
C168	1-135-099-00	TANTAL. CHIP 2.2MF	10%	6.3V
C169	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C170	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C171	1-135-100-21	TANTAL. CHIP 6.8MF	10%	6.3V
C172	1-163-033-00	CERAMIC CHIP 0.022MF		50V
C174	1-135-099-00	TANTAL. CHIP 2.2MF	10%	6.3V
C175	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C176	1-163-111-00	CERAMIC CHIP 56PF	5%	50V
C178	1-135-096-21	TANTAL. CHIP 4.7MF	10%	10V
C179	1-163-111-00	CERAMIC CHIP 56PF	5%	50V
C180	1-163-133-00	CERAMIC CHIP 470PF	5%	50V
C181	1-163-111-00	CERAMIC CHIP 56PF	5%	50V
C182	1-135-100-21	TANTAL. CHIP 6.8MF	10%	6.3V
C183	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C184	1-135-100-21	TANTAL. CHIP 6.8MF	10%	6.3V
C185	1-163-075-00	CERAMIC CHIP 0.047MF	10%	25V
C186	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V
C187	1-163-075-00	CERAMIC CHIP 0.047MF	10%	25V
C188	1-163-074-00	CERAMIC CHIP 0.033MF	10%	25V
C189	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C190	1-163-075-00	CERAMIC CHIP 0.047MF	10%	25V
C191	1-135-099-00	TANTAL. CHIP 2.2MF	10%	6.3V
C192	1-163-145-00	CERAMIC CHIP 0.0015MF	10%	50V
C193	1-163-131-00	CERAMIC CHIP 390PF	5%	50V
C196	1-163-013-00	CERAMIC CHIP 0.0022MF	10%	50V
C199	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C200	1-135-100-21	TANTAL. CHIP 6.8MF	10%	6.3V
C201	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C202	1-135-100-21	TANTAL. CHIP 6.8MF	10%	6.3V
C203	1-163-074-00	CERAMIC CHIP 0.033MF	10%	25V
C204	1-163-129-00	CERAMIC CHIP 330PF	10%	50V
C205	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C206	1-135-100-21	TANTAL. CHIP 6.8MF	10%	6.3V
C207	1-163-088-00	CERAMIC CHIP 5PF	0.25PF	50V
C208	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C209	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C210	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C211	1-163-131-00	CERAMIC CHIP 390PF	5%	50V
C212	1-163-129-00	CERAMIC CHIP 330PF	10%	50V
C213	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C214	1-135-099-00	TANTAL. CHIP 2.2MF	10%	6.3V
C215	1-163-115-00	CERAMIC CHIP 82PF	5%	50V
C216	1-163-143-00	CERAMIC CHIP 0.0012MF	5%	50V
C217	1-163-129-00	CERAMIC CHIP 330PF	10%	50V
C218	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C219	1-135-099-00	TANTAL. CHIP 2.2MF	10%	6.3V
C220	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C221	1-163-033-00	CERAMIC CHIP 0.022MF		50V
C222	1-163-033-00	CERAMIC CHIP 0.022MF		50V
C223	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C224	1-135-072-21	TANTAL. CHIP 0.22MF	10%	35V
C225	1-135-099-00	TANTAL. CHIP 2.2MF	10%	6.3V
C226	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C227	1-135-100-21	TANTAL. CHIP 6.8MF	10%	6.3V
C229	1-135-096-21	TANTAL. CHIP 4.7MF	10%	10V
C230	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C231	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V
C232	1-135-100-21	TANTAL. CHIP 6.8MF	10%	6.3V
C233	1-163-129-00	CERAMIC CHIP 330PF	5%	50V
C234	1-163-129-00	CERAMIC CHIP 330PF	5%	50V
C235	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C236	1-163-093-00	CERAMIC CHIP 10PF	5%	50V
C237	1-163-108-00	CERAMIC CHIP 43PF	5%	50V
C238	1-163-104-00	CERAMIC CHIP 30PF	5%	50V
C240	1-163-257-00	CERAMIC CHIP 180PF	5%	50V
C241	1-163-143-00	CERAMIC CHIP 0.0018MF	10%	50V
C242	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C243	1-163-129-00	CERAMIC CHIP 330PF	10%	50V
C246	1-135-073-00	TANTAL. CHIP 0.33MF	10%	35V
C247	1-135-070-00	TANTAL. CHIP 0.1MF	10%	35V
C248	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C249	1-135-100-21	TANTAL. CHIP 6.8MF	10%	6.3V
C250	1-163-118-00	CERAMIC CHIP 110PF	5%	50V

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description		Remark
C251	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C252	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C253	1-163-335-11	CERAMIC CHIP 0.001MF	5%	50V
C254	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C255	1-163-088-00	CERAMIC CHIP 5PF	0.25PF	50V
C256	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C257	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C259	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C260	1-135-099-00	TANTAL. CHIP 2.2MF	10%	6.3V
C261	1-135-103-00	TANTAL. CHIP 3.3MF	10%	4V
C262	1-163-019-00	CERAMIC CHIP 0.0068MF	10%	50V
C263	1-163-145-00	CERAMIC CHIP 0.0015MF	10%	50V
C264	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C265	1-163-113-00	CERAMIC CHIP 68PF	5%	50V
C266	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C267	1-163-129-00	CERAMIC CHIP 330PF	5%	50V
C268	1-163-105-00	CERAMIC CHIP 33PF	5%	50V
C269	1-163-145-00	CERAMIC CHIP 0.0015MF	5%	50V
C270	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C271	1-163-111-00	CERAMIC CHIP 56PF	5%	50V
C272	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
C273	1-163-133-00	CERAMIC CHIP 470PF	5%	50V
C274	1-163-115-00	CERAMIC CHIP 82PF	5%	50V
C275	1-163-115-00	CERAMIC CHIP 82PF	5%	50V
C276	1-135-100-21	TANTAL. CHIP 6.8MF	10%	6.3V
C277	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C278	1-124-233-00	ELECT 10MF	20%	16V
C279	1-124-222-00	ELECT 22MF	20%	6.3V
C280	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C281	1-124-222-00	ELECT 22MF	20%	6.3V
C283	1-135-100-21	TANTAL. CHIP 6.8MF	10%	6.3V
C284	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
C285	1-124-499-11	ELECT 1MF	20%	50V
C286	1-163-075-00	CERAMIC CHIP 0.047MF	10%	25V
C287	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C288	1-135-100-21	TANTAL. CHIP 6.8MF	10%	6.3V
C289	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C290	1-163-115-00	CERAMIC CHIP 82PF	5%	50V
C291	1-124-587-11	ELECT 220MF	20%	6.3V
C292	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C293	1-135-100-21	TANTAL. CHIP 6.8MF	10%	6.3V
C294	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C295	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C296	1-124-233-00	ELECT 10MF	20%	16V
C297	1-163-129-00	CERAMIC CHIP 330PF	10%	50V
C299	1-163-121-00	CERAMIC CHIP 150PF	5%	50V
C301	1-163-105-00	CERAMIC CHIP 33PF	5%	50V
C303	1-135-091-00	TANTAL. CHIP 1MF	10%	16V
C309	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C310	1-163-013-00	CERAMIC CHIP 0.0022MF	10%	50V
C311	1-163-309-00	CERAMIC CHIP 7PF	0.25PF	50V

Ref.No	Part No.	Description	Remark
		CONNECTOR	
CN001	1-564-610-21	CONNECTOR, BOARD TO BOARD	
CN002	1-564-610-21	CONNECTOR, BOARD TO BOARD	
CN003	1-564-610-21	CONNECTOR, BOARD TO BOARD	
CN004	1-564-610-21	CONNECTOR, BOARD TO BOARD	
CN101	*1-564-005-00	PIN, CONNECTOR 6P	
CN102	*1-564-001-11	PIN, CONNECTOR 2P	
CN103	*1-564-002-00	PIN, CONNECTOR 3P	
CN104	1-562-582-11	SOCKET, CONNECTOR 24P	
CN109	*1-564-013-00	PIN, CONNECTOR 3P	
CN110	1-557-554-11	CABLE, FLAT (26 CORE)	
		TRIMMER	
CV101	1-141-227-00	CAP, CERAMIC TRIMMER 20PF	
		DIODE	
D103	8-719-100-05	DIODE 1S2837	
D104	8-719-100-05	DIODE 1S2837	
D105	8-719-100-05	DIODE 1S2837	
D106	8-719-101-23	DIODE 1SS123	
D107	8-719-101-23	DIODE 1SS123	
D109	8-719-101-23	DIODE 1SS123	
D110	8-719-101-23	DIODE 1SS123	
		DELAY LINE	
DL101	1-415-385-11	DELAY LINE, 2H (4.43MHZ)	
DL102	1-415-386-11	DELAY LINE, 1H (13.3MHZ)	
		FILTER	
FL102	1-409-394-12	TRAP, CHROMA EMPHASIS	
FL103	1-235-438-11	BPF, REC C	
FL104	1-235-437-11	BPF, PB C	
FL105	1-235-632-11	FILTER, BAND PASS (3.7MHZ)(BPF)	
FL106	1-235-633-11	FILTER, BAND PASS(5.17MHZ)(BPF)	
FL107	1-235-436-11	FILTER, BAND PASS (16KHZ)	
FL108	1-235-435-11	FILTER, BAND PASS (45KHZ)	
		IC	
IC101	8-752-003-00	IC CX20030	
IC102	8-752-003-10	IC CX20031	
IC103	8-752-202-10	IC CX22021	
IC104	8-752-003-20	IC CX20032	
IC105	8-759-914-56	IC CX23054	
IC106	8-752-202-20	IC CX22022	
IC107	8-757-991-00	IC CX-7991	
IC108	8-759-202-67	IC CX20117	
		COIL	
L101	1-408-795-21	INDUCTOR CHIP 330UH	
L110	1-408-777-00	INDUCTOR CHIP 10UH	
L111	1-408-781-00	INDUCTOR CHIP 22UH	
L119	1-408-765-21	INDUCTOR CHIP 1UH	

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description	Remark
L120	1-408-765-21	INDUCTOR CHIP 1UH	
L121	1-408-792-00	INDUCTOR CHIP 180UH	
L122	1-408-789-21	INDUCTOR CHIP 100UH	
L123	1-408-781-00	INDUCTOR CHIP 22UH	
L124	1-408-790-00	INDUCTOR CHIP 120UH	
L125	1-410-167-41	INDUCTOR CHIP 820UH	
L126	1-408-790-00	INDUCTOR CHIP 120UH	
L127	1-408-781-00	INDUCTOR CHIP 22UH	
L129 ⚠	1-408-785-21	INDUCTOR CHIP 47UH	
L130	1-408-776-00	INDUCTOR CHIP 8.2UH	
L131	1-408-795-21	INDUCTOR CHIP 330UH	
L134	1-408-785-21	INDUCTOR CHIP 47UH	
L135	1-408-790-00	INDUCTOR CHIP 120UH	
L136	1-408-777-00	INDUCTOR CHIP 10UH	
L137	1-408-785-21	INDUCTOR CHIP 47UH	
L138	1-408-791-00	INDUCTOR CHIP 150UH	
L142	1-410-167-41	INDUCTOR CHIP 820UH	
L143	1-408-789-21	INDUCTOR CHIP 100UH	

VARIABLE COIL

Ref.No	Part No.	Description	Remark
LV102	1-459-546-11	COIL, VARIABLE 150UH	
LV103	1-404-594-11	COIL, VARIABLE 10UH	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q101	8-729-312-22	TRANSISTOR 2SA1122	
Q102	8-729-901-03	TRANSISTOR DTC144WK	
Q103	8-729-901-03	TRANSISTOR DTC144WK	
Q104	8-729-901-03	TRANSISTOR DTC144WK	
Q108	8-729-100-66	TRANSISTOR 2SC1623	
Q109	8-729-901-03	TRANSISTOR DTC144WK	
Q113	8-729-901-03	TRANSISTOR DTC144WK	
Q114	8-729-900-99	TRANSISTOR DTA144WK	
Q115	8-729-116-06	TRANSISTOR 2SK160-K6	
Q116	8-729-900-99	TRANSISTOR DTA144WK	
Q117	8-729-100-66	TRANSISTOR 2SC1623	
Q118	8-729-100-66	TRANSISTOR 2SC1623	
Q119	8-729-312-22	TRANSISTOR 2SA1122	
Q120	8-729-100-66	TRANSISTOR 2SC1623	
Q121	8-729-312-22	TRANSISTOR 2SA1122	
Q122	8-729-901-03	TRANSISTOR DTC144WK	
Q123	8-729-900-61	TRANSISTOR DTA114ES	
Q124	8-729-312-22	TRANSISTOR 2SA1122	
Q125	8-729-100-66	TRANSISTOR 2SC1623	
Q126	8-729-312-22	TRANSISTOR 2SA1122	
Q127	8-729-100-66	TRANSISTOR 2SC1623	
Q128	8-729-312-22	TRANSISTOR 2SA1122	
Q130	8-729-901-03	TRANSISTOR DTC144WK	
Q131	8-729-900-53	TRANSISTOR DTC114EK	
Q132	8-729-312-22	TRANSISTOR 2SA1122	

RESISTOR

Ref.No	Part No.	Description	Remark
R101	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R102	1-216-043-00	METAL CHIP 560 5% 1/10W	
R103	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R104	1-216-043-00	METAL CHIP 560 5% 1/10W	
R105	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R106	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R107	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R108	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R109	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R110	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R111	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R112	1-216-041-00	METAL CHIP 470 5% 1/10W	
R113	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R114	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R115	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R116	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R117	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R118	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R119	1-216-131-00	METAL CHIP 2.7M 5% 1/10W	
R120	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R121	1-216-095-00	METAL CHIP 82K 5% 1/10W	
R122	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R123	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R124	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R125	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R126	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R127	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R128	1-216-047-00	METAL CHIP 820 5% 1/10W	
R129	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R130	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R145	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R146	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R147	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R148	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R149	1-216-043-00	METAL CHIP 560 5% 1/10W	
R150	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R151	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R153	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R155	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R157	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R158	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R159	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R160	1-216-027-00	METAL CHIP 120 5% 1/10W	
R161	1-216-035-00	METAL CHIP 270 5% 1/10W	
R162	1-216-039-00	METAL CHIP 390 5% 1/10W	
R163	1-216-039-00	METAL CHIP 390 5% 1/10W	
R164	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R165	1-216-041-00	METAL CHIP 470 5% 1/10W	
R175	1-216-041-00	METAL CHIP 470 5% 1/10W	
R181	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R182	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R183	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R184	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R185	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R186	1-216-077-00	METAL CHIP 15K 5% 1/10W	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R187	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R188	1-216-025-00	METAL CHIP	100	5%	1/10W	
R189	1-216-009-00	METAL CHIP	22	5%	1/10W	
R190	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R191	1-216-027-00	METAL CHIP	120	5%	1/10W	
R192	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R193	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R194	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R195	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R196	1-216-087-00	METAL CHIP	39K	5%	1/10W	
R197	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R198	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R199	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R200	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R201	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R202	1-216-037-00	METAL CHIP	330	5%	1/10W	
R203	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R204	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R205	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R206	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R207	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R208	1-216-117-00	METAL CHIP	680K	5%	1/10W	
R209	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R211	1-216-115-00	METAL CHIP	560K	5%	1/10W	
R212	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R213	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R214	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R215	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R216	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R217	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R218	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R219	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R220	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R221	1-216-039-00	METAL CHIP	390	5%	1/10W	
R222	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R225	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R226	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R227	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R228	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R229	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R230	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R231	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R232	1-216-043-00	METAL CHIP	560	5%	1/10W	
R233	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R234	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R235	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R237	1-216-045-00	METAL CHIP	680	5%	1/10W	
R238	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R239	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R240	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R241	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R242	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R243	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	

Ref.No	Part No.	Description				Remark
R244	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R245	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R246	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R247	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R248	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R249	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R250	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R251	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R252	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R253	1-216-103-00	METAL CHIP	180K	5%	1/10W	
R254	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R255	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R256	1-216-041-00	METAL CHIP	470	5%	1/10W	
R257	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R258	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R259	1-216-043-00	METAL CHIP	560	5%	1/10W	
R260	1-216-095-00	METAL CHIP	82K	5%	1/10W	
R261	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R262	1-216-093-00	METAL CHIP	68K	5%	1/10W	
R263	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R264	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R265	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R266	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R268	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R269	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R270	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R271	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R272	1-216-115-00	METAL CHIP	560K	5%	1/10W	
R273	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R274	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R275	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R276	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R277	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R278	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R279	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R280	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R281	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R282	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R283	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R284	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R285	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R287	1-216-021-00	METAL CHIP	68	5%	1/10W	
R289	1-216-015-00	METAL CHIP	39	5%	1/10W	
R290	1-216-015-00	METAL CHIP	39	5%	1/10W	
R291	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R292	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R293	1-216-117-00	METAL CHIP	680K	5%	1/10W	
R294	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R295	1-216-117-00	METAL CHIP	680K	5%	1/10W	
R296	⚠ 1-216-025-91	METAL CHIP	100	5%	1/10W	
R297	⚠ 1-216-025-91	METAL CHIP	100	5%	1/10W	
R298	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R299	1-216-097-00	METAL CHIP	100K	5%	1/10W	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R300	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R301	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R302	1-216-039-00	METAL CHIP	390	5%	1/10W	
R304	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R305	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R306	1-216-025-00	METAL CHIP	100	5%	1/10W	
R307	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R308 ⚠	1-216-049-91	METAL CHIP	1K	5%	1/10W	
R309 ⚠	1-216-049-91	METAL CHIP	1K	5%	1/10W	
R310	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R311	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R312	1-216-295-00	METAL CHIP	0	5%	1/10W	
R314	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R315	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R316	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R319	1-216-039-00	METAL CHIP	390	5%	1/10W	
R320	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R323	1-216-033-00	METAL CHIP	220	5%	1/10W	
R336	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R337	1-216-099-00	METAL CHIP	120K	5%	1/10W	
R341	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R342	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R343	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R344	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R345	1-216-031-00	METAL CHIP	180	5%	1/10W	
R346	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R347	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R349	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R350	1-216-295-00	METAL CHIP	0	5%	1/10W	
R355	1-216-049-00	METAL CHIP	1K	5%	1/10W	

VARIABLE RESISTOR

RV101	1-228-825-21	RES, ADJ, METAL GLAZE 470
RV102	1-228-830-21	RES, ADJ, METAL GLAZE 22K
RV103	1-228-830-21	RES, ADJ, METAL GLAZE 22K
RV104	1-228-828-21	RES, ADJ, METAL GLAZE 4.7K
RV105	1-228-830-21	RES, ADJ, METAL GLAZE 22K
RV106	1-228-830-21	RES, ADJ, METAL GLAZE 22K
RV107	1-228-830-21	RES, ADJ, METAL GLAZE 22K
RV108	1-228-830-21	RES, ADJ, METAL GLAZE 22K
RV109	1-228-830-21	RES, ADJ, METAL GLAZE 22K
RV110	1-228-829-21	RES, ADJ, METAL GLAZE 10K
RV111	1-228-830-21	RES, ADJ, METAL GLAZE 22K
RV112	1-228-834-11	RES, ADJ, METAL GLAZE 220K
RV113	1-228-876-00	RES, ADJ, METAL GLAZE 47K

CRYSTAL

X101	1-527-345-00	CRYSTAL, OSCILLATOR 4.43MHz
X102	1-567-345-21	VIBRATOR, CRYSTAL 5.86MHz
X103	1-567-347-11	OSCILLATOR, CERAMIC 13.3MHz

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Ref.No	Part No.	Description				Remark
	*A-7070-168-A	EX-3 BOARD, COMPLETED				

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CAPACITOR

C361	1-135-100-21	TANTAL. CHIP	6.8MF	20%	6.3V
C362	1-163-088-00	CERAMIC CHIP	5PF	0.25PF	50V
C363	1-163-234-00	CERAMIC CHIP	20PF	5%	50V
C364	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C365	1-163-085-00	CERAMIC CHIP	2PF	0.25PF	50V
C366	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C367	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C368	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C369	1-163-095-00	CERAMIC CHIP	12PF	5%	50V
C370	1-135-096-21	TANTAL. CHIP	4.7MF	20%	10V
C371	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C372	1-163-119-00	CERAMIC CHIP	120PF	5%	50V
C373	1-163-107-00	CERAMIC CHIP	39PF	5%	50V
C374	1-163-112-00	CERAMIC CHIP	62PF	5%	50V
C375	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C376	1-163-114-00	CERAMIC CHIP	75PF	5%	50V
C377	1-135-096-21	TANTAL. CHIP	4.7MF	20%	10V
C378	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C379	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C380	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C381	1-135-100-21	TANTAL. CHIP	6.8MF	20%	6.3V
C382	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C383	1-135-100-21	TANTAL. CHIP	6.8MF	20%	6.3V
C384	1-163-119-00	CERAMIC CHIP	120PF	5%	50V
C385	1-163-015-00	CERAMIC CHIP	0.0033MF	10%	50V
C386	1-163-033-00	CERAMIC CHIP	0.022MF	10%	25V
C387	1-163-021-00	CERAMIC CHIP	0.01MF		50V

DIODE

D361	8-719-101-23	DIODE 1SS123
D362	8-719-101-23	DIODE 1SS123

COIL

L361	1-410-219-31	INDUCTOR CHIP	180UH
L362	1-410-220-31	INDUCTOR CHIP	220UH
L363	1-410-220-31	INDUCTOR CHIP	220UH
L364	1-410-214-31	INDUCTOR CHIP	68UH
L365	1-410-216-31	INDUCTOR CHIP	100UH
L366	1-410-212-51	INDUCTOR CHIP	47UH
L367	1-410-213-51	INDUCTOR CHIP	56UH
L368	1-410-214-31	INDUCTOR CHIP	68UH
L369	1-410-216-31	INDUCTOR CHIP	100UH
L370	1-410-213-51	INDUCTOR CHIP	56UH
L371	1-410-215-31	INDUCTOR CHIP	82UH
L372	1-410-213-51	INDUCTOR CHIP	56UH
L373	1-410-213-51	INDUCTOR CHIP	56UH
L374	1-410-192-51	INDUCTOR CHIP	1UH

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

TRANSISTOR

Ref.No	Part No.	Description				Remark
Q361	8-729-312-22	TRANSISTOR 2SA1122				
Q362	8-729-312-22	TRANSISTOR 2SA1122				
Q363	8-729-100-66	TRANSISTOR 2SC1623				
Q364	8-729-100-66	TRANSISTOR 2SC1623				
Q365	8-729-312-22	TRANSISTOR 2SA1122				
Q366	8-729-100-66	TRANSISTOR 2SC1623				
Q367	8-729-100-66	TRANSISTOR 2SC1623				
Q368	8-729-312-22	TRANSISTOR 2SA1122				
Q370	8-729-901-03	TRANSISTOR DTC144WK				
Q373	8-729-901-03	TRANSISTOR DTC144WK				
Q374	8-729-900-99	TRANSISTOR DTA144WK				

RESISTOR

Ref.No	Part No.	Description				Remark
R357	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R358	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R359	1-216-043-00	METAL CHIP	560	5%	1/10W	
R361	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R362	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R363	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R364	1-216-039-00	METAL CHIP	390	5%	1/10W	
R365	1-216-041-00	METAL CHIP	470	5%	1/10W	
R366	1-216-041-00	METAL CHIP	470	5%	1/10W	
R367	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R368	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R369	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R370	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R371	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R372	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R373	1-216-039-00	METAL CHIP	390	5%	1/10W	
R374	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R375	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R376	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R377	1-216-045-00	METAL CHIP	680	5%	1/10W	
R378	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R379	1-216-045-00	METAL CHIP	680	5%	1/10W	
R380	1-216-045-00	METAL CHIP	680	5%	1/10W	
R381	1-216-045-00	METAL CHIP	680	5%	1/10W	
R382	1-216-047-00	METAL CHIP	820	5%	1/10W	
R383	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R384	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R385	1-216-045-00	METAL CHIP	680	5%	1/10W	
R386	1-216-045-00	METAL CHIP	680	5%	1/10W	
R387	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R388	1-216-025-00	METAL CHIP	100	5%	1/10W	
R389	1-216-039-00	METAL CHIP	390	5%	1/10W	
R390	1-216-041-00	METAL CHIP	470	5%	1/10W	
R391	1-216-001-00	METAL CHIP	10	5%	1/10W	
R392	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R393	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R394	1-216-041-00	METAL CHIP	470	5%	1/10W	
R395	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R397	1-216-025-00	METAL CHIP	100	5%	1/10W	

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*1-161-826-11 TK-2 BOARD
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CAPACITOR

Ref.No	Part No.	Description				Remark
C351	1-163-137-00	CERAMIC CHIP	680PF	10%	50V	

CONNECTOR

Ref.No	Part No.	Description				Remark
CN016	*1-506-580-11	PIN, BOARD TO BOARD 2P				

DIODE

Ref.No	Part No.	Description				Remark
D351	8-719-100-03	DIODE 1S2835				

TRANSISTOR

Ref.No	Part No.	Description				Remark
Q351	8-729-901-03	TRANSISTOR DTC144WK				
Q352	8-729-901-03	TRANSISTOR DTC144WK				
Q353	8-729-100-66	TRANSISTOR 2SC1623				

RESISTOR

Ref.No	Part No.	Description				Remark
R351	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R352	1-216-119-00	METAL CHIP	820K	5%	1/10W	
R353	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R354	1-216-109-00	METAL CHIP	330K	5%	1/10W	

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*A-7060-245-A AR-2 BOARD, COMPLETE
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*3-686-957-01 CASE (MAIN), SHIELD, AR

CAPACITOR

Ref.No	Part No.	Description				Remark
C101	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C102	1-124-224-00	ELECT	47MF	20%	6.3V	
C103	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C104	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C105	1-163-075-00	CERAMIC CHIP	0.047MF	10%	25V	
C106	1-131-347-00	TANTALUM	1MF	10%	35V	
C107	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C108	1-163-075-00	CERAMIC CHIP	0.047MF	10%	25V	
C109	1-163-075-00	CERAMIC CHIP	0.047MF	10%	25V	
C110	1-124-225-00	ELECT	100MF	20%	6.3V	
C111	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C112	1-124-225-00	ELECT	100MF	20%	6.3V	
C113	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C114	1-131-347-00	TANTALUM	1MF	10%	35V	
C115	1-163-075-00	CERAMIC CHIP	0.047MF	10%	25V	
C116	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C117	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C118	1-163-075-00	CERAMIC CHIP	0.047MF	10%	25V	
C119	1-124-255-00	ELECT	1MF	20%	50V	

When indicating parts by reference number, please include the board name.

AR-2

Ref.No	Part No.	Description	Remark
C120	1-163-103-00	CERAMIC CHIP 27PF	5% 50V
C122	1-163-021-00	CERAMIC CHIP 0.01MF	10% 50V
C123	1-163-021-00	CERAMIC CHIP 0.01MF	10% 50V
C124	1-124-222-00	ELECT 22MF	20% 6.3V
C125	1-163-105-00	CERAMIC CHIP 33PF	5% 50V
C126	1-163-115-00	CERAMIC CHIP 82PF	5% 50V
C128	1-163-021-00	CERAMIC CHIP 0.01MF	10% 50V
C129	1-163-021-00	CERAMIC CHIP 0.01MF	10% 50V
C130	1-163-021-00	CERAMIC CHIP 0.01MF	10% 50V
C131	1-163-021-00	CERAMIC CHIP 0.01MF	10% 50V
C132	1-163-021-00	CERAMIC CHIP 0.01MF	10% 50V
C133	1-163-021-00	CERAMIC CHIP 0.01MF	10% 50V
C134	1-163-075-00	CERAMIC CHIP 0.047MF	10% 25V
C135	1-163-075-00	CERAMIC CHIP 0.047MF	10% 25V
C136	1-163-075-00	CERAMIC CHIP 0.047MF	10% 25V
C138	1-163-103-00	CERAMIC CHIP 27PF	5% 50V
C139	1-163-021-00	CERAMIC CHIP 0.01MF	10% 50V
C140	1-163-075-00	CERAMIC CHIP 0.047MF	10% 25V
C141	1-163-127-00	CERAMIC CHIP 270PF	5% 50V
C142	1-163-033-00	CERAMIC CHIP 0.022MF	10% 25V
C143	1-163-033-00	CERAMIC CHIP 0.022MF	10% 25V
C144	1-163-075-00	CERAMIC CHIP 0.047MF	10% 25V
C145	1-124-233-00	ELECT 10MF	20% 16V
C146	1-163-107-00	CERAMIC CHIP 39PF	5% 50V
C147	1-163-129-00	CERAMIC CHIP 330PF	5% 50V
C148	1-163-075-00	CERAMIC CHIP 0.047MF	10% 25V
C149	1-163-075-00	CERAMIC CHIP 0.047MF	10% 25V
C401	1-163-019-00	CERAMIC CHIP 0.0068MF	10% 50V
C402	1-163-021-00	CERAMIC CHIP 0.01MF	10% 50V
C403	1-163-021-00	CERAMIC CHIP 0.01MF	10% 50V
C404	1-163-021-00	CERAMIC CHIP 0.01MF	10% 50V
C405	1-163-033-00	CERAMIC CHIP 0.022MF	10% 25V
C406	1-163-257-00	CERAMIC CHIP 180PF	5% 50V
C407	1-163-083-00	TANTAL 0.47MF	20% 25V
C408	1-163-145-00	CERAMIC CHIP 0.0015MF	5% 50V
C409	1-163-257-00	CERAMIC CHIP 180PF	5% 50V
C410	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
C411	1-163-014-00	CERAMIC CHIP 0.0027MF	10% 50V
C412	1-163-021-00	CERAMIC CHIP 0.01MF	10% 50V
C413	1-163-141-00	CERAMIC CHIP 0.001MF	10% 50V
C414	1-124-225-00	ELECT 100MF	20% 6.3V
C415	1-124-225 00	ELECT 100MF	20% 6.3V
C416	1-124-225-00	ELECT 100MF	20% 6.3V
C417	1-124-224-00	ELECT 47MF	20% 6.3V
C418	1-163-005-00	CERAMIC CHIP 470PF	10% 50V
C419	1-124-225-00	ELECT 100MF	20% 6.3V
C420	1-124-233-00	ELECT 10MF	20% 16V
C421	1-163-088-00	CERAMIC CHIP 5PF	0.25PF 50V
C422	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
C423	1-163-125-00	CERAMIC CHIP 220PF	5% 50V
C424	1-163-079-00	CERAMIC CHIP 0.039MF	10% 25V
C425	1-163-137-00	CERAMIC CHIP 680PF	5% 50V
C426	1-163-020-00	CERAMIC CHIP 0.0082MF	10% 50V
C427	1-124-255-00	ELECT 1MF	20% 50V
C428	1-124-233-00	ELECT 10MF	20% 16V
C429	1-124-233-00	ELECT 10MF	20% 16V
C430	1-123-618-00	ELECT 22MF	20% 6.3V
C431	1-123-612-00	ELECT 2.2MF	20% 50V
C432	1-124-253-00	ELECT 0.47MF	20% 50V
C433	1-123-661-00	ELECT 100MF	20% 6.3V
C434	1-163-141-00	CERAMIC CHIP 0.001MF	10% 50V
C436	1-123-661-00	ELECT 100MF	20% 6.3V
C437	1-123-610-00	ELECT 0.47MF	20% 50V
C438	1-163-257-00	CERAMIC CHIP 180PF	5% 50V
C439	1-163-014-00	CERAMIC CHIP 0.0027MF	10% 50V
C441	1-124-233-00	ELECT 10MF	20% 16V
C442	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C444	1-163-005-00	CERAMIC CHIP 470PF	10% 50V
C445	1-163-103-00	CERAMIC CHIP 27PF	5% 50V
C446	1-124-233-00	ELECT 10MF	20% 16V

CONNECTOR

Ref.No	Part No.	Description
CN007	1-564-098-21	CONNECTOR, BOARD TO BOARD
CN008	1-564-098-21	CONNECTOR, BOARD TO BOARD
CN009	1-564-098-21	CONNECTOR, BOARD TO BOARD
CN111	*1-564-016-00	PIN, CONNECTOR 6P
CN112	*1-564-003-00	PIN, CONNECTOR 4P
CN113	*1-564-014-00	PIN, CONNECTOR 4P
CN114	*1-564-012-00	PIN, CONNECTOR 2P

DIODE

Ref.No	Part No.	Description
D101	8-719-101-23	DIODE 1SS123

FILTER

Ref.No	Part No.	Description
FL401	1-235-398-11	BPF 1.5MHZ

IC

Ref.No	Part No.	Description
IC101	8-752-003-40	IC CX20034
IC401	8-752-003-73	IC CX20037-2

COIL

Ref.No	Part No.	Description
L101	1-408-970-21	MICRO INDUCTOR 10UH
L102	1-408-984-21	MICRO INDUCTOR 150UH
L103	1-407-161-XX	MICRO INDUCTOR 22UH
L104	1-407-161-XX	MICRO INDUCTOR 22UH
L105	1-407-161-XX	MICRO INDUCTOR 22UH
L106	1-408-966-21	MICRO INDUCTOR 4.7UH
L107	1-407-177-XX	MICRO INDUCTOR 470UH
L108	1-407-161-XX	MICRO INDUCTOR 22UH
L109	1-407-172-XX	MICRO INDUCTOR 180UH
L111	1-407-160-XX	MICRO INDUCTOR 18UH
L401	1-408-948-00	MICRO INDUCTOR 220UH

When indicating parts by reference number, please include the board name.

VARIABLE COIL

Ref.No	Part No.	Description	Remark
LV101	1-459-548-11	COIL, VARIABLE 330UH	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q101	8-729-100-66	TRANSISTOR 2SC1623	
Q102	8-729-901-03	TRANSISTOR DTC144WK	
Q103	8-729-901-03	TRANSISTOR DTC144WK	
Q104	8-729-271-23	TRANSISTOR 2SC2712	
Q105	8-729-100-66	TRANSISTOR 2SC1623	
Q106	8-729-100-66	TRANSISTOR 2SC1623	
Q401	8-729-100-66	TRANSISTOR 2SC1623	
Q404	8-729-100-66	TRANSISTOR 2SC1623	
Q405	8-729-900-99	TRANSISTOR DTA144WK	
Q407	8-729-100-66	TRANSISTOR 2SC1623	
Q408	8-729-100-76	TRANSISTOR 2SA812	

RESISTOR

Ref.No	Part No.	Description				Remark
R101	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R102	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R103	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R104	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R105	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R106	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R107	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R108	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R109	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R110	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R111	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R112	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R113	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R114	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R115	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R116	1-216-043-00	METAL CHIP	560	5%	1/10W	
R117	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R118	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R119	1-216-045-00	METAL CHIP	680	5%	1/10W	
R120	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R121	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R122	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R123	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R124	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R125	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R126	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R127	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R128	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R129	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R130	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R131	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R132	1-216-045-00	METAL CHIP	680	5%	1/10W	
R133	1-216-043-00	METAL CHIP	560	5%	1/10W	
R134	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R135	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R136	1-216-041-00	METAL CHIP	470	5%	1/10W	
R137	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R138	1-216-047-00	METAL CHIP	820	5%	1/10W	
R139	1-216-023-00	METAL CHIP	82	5%	1/10W	
R140	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R141	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R142	1-216-037-00	METAL CHIP	330	5%	1/10W	
R143	1-216-025-00	METAL CHIP	100	5%	1/10W	
R144	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R145	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R146	1-216-295-00	METAL CHIP	0	5%	1/10W	
R401	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R402	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R403	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R404	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R405	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R406	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R407	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R408	1-216-060-00	METAL CHIP	3K	5%	1/10W	
R409	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R410	1-216-047-00	METAL CHIP	820	5%	1/10W	
R411	1-216-047-00	METAL CHIP	820	5%	1/10W	
R413	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R414	1-216-001-00	METAL CHIP	10	5%	1/10W	
R415	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R416	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R417	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R418	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R419	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R420	1-216-045-00	METAL CHIP	680	5%	1/10W	
R421	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R422	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R423	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R424	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R425	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R426	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R427	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R428	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R429	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R430	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R431	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R432	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R434	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R435	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R437	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R438	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R439	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R440	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R441	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R442	1-216-041-00	METAL CHIP	470	5%	1/10W	
R444	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R445	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R446	1-216-023-00	METAL CHIP	82	5%	1/10W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
R447	1-216-043-00	METAL CHIP 560 5% 1/10W	
R448	1-216-037-00	METAL CHIP 330 5% 1/10W	
R449	1-216-041-00	METAL CHIP 470 5% 1/10W	

VARIABLE RESISTOR

RV101	1-230-523-11	RES, ADJ, METAL GLAZE 10K	
RV102	1-230-522-11	RES, ADJ, METAL GLAZE 4.7K	
RV103	1-230-524-11	RES, ADJ, METAL GLAZE 22K	
RV104	1-230-522-11	RES, ADJ, METAL GLAZE 4.7K	
RV105	1-230-523-11	RES, ADJ, METAL GLAZE 10K	
RV106	1-230-522-11	RES, ADJ, METAL GLAZE 4.7K	
RV401	1-230-524-11	RES, ADJ, METAL GLAZE 22K	
RV402	1-230-523-11	RES, ADJ, METAL GLAZE 10K	

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	*A-7060-246-A	SK-8 BOARD, COMPLETE ********************	
	*3-686-795-01	SPRING (SK)	
	*3-686-822-01	HOLDER, LCD	

CAPACITOR

C491	1-163-031-00	CERAMIC CHIP 0.01MF 50V	
C601	1-163-125-00	CERAMIC CHIP 220PF 5% 50V	
C602	1-163-125-00	CERAMIC CHIP 220PF 5% 50V	
C603	1-163-077-00	CERAMIC CHIP 0.1MF 50V	
C604	1-163-021-00	CERAMIC CHIP 0.01MF 50V	
C605	1-163-021-00	CERAMIC CHIP 0.01MF 50V	
C606	1-163-021-00	CERAMIC CHIP 0.01MF 50V	
C607	1-163-021-00	CERAMIC CHIP 0.01MF 50V	
C609	1-123-617-00	ELECT 10MF 20% 16V	
C610	1-163-021-00	CERAMIC CHIP 0.01MF 50V	
C611	1-123-617-00	ELECT 10MF 20% 16V	
C612	1-163-081-00	CERAMIC CHIP 0.22MF 25V	
C613	1-163-021-00	CERAMIC CHIP 0.01MF 50V	
C617	1-163-021-00	CERAMIC CHIP 0.01MF 50V	
C618	1-163-021-00	CERAMIC CHIP 0.01MF 50V	
C619	1-163-005-00	CERAMIC CHIP 470PF 10% 50V	

CONNECTOR

CN605	1-562-589-11	SOCKET, DIN (SMALL TYPE) 5P	

DIODE

D601	8-719-100-05	DIODE 1S2837	
D602	8-719-100-05	DIODE 1S2837	
D603	8-719-100-05	DIODE 1S2837	
D604	8-719-100-05	DIODE 1S2837	
D605	8-719-100-05	DIODE 1S2837	
D606	8-719-100-05	DIODE 1S2837	
D607	8-719-100-05	DIODE 1S2837	
D608	8-719-100-03	DIODE 1S2835	
D609	8-719-100-05	DIODE 1S2837	
D610	8-719-100-05	DIODE 1S2837	
D611	8-719-100-05	DIODE 1S2837	
D612	8-719-100-05	DIODE 1S2837	
D613	8-719-100-03	DIODE 1S2835	
D614	8-719-918-67	DIODE GL-1EG102	
D615	8-719-918-65	DIODE GL-1PR102	
D616	8-719-918-67	DIODE GL-1EG102	
D617	8-719-918-65	DIODE GL-1PR102	
D618	8-719-918-66	DIODE GL-1HY102	
D619	8-719-918-66	DIODE GL-1HY102	
D620	8-719-106-71	DIODE RD12M-B2	
D621	8-719-106-71	DIODE RD12M-B2	
D622	8-719-106-71	DIODE RD12M-B2	

IC

IC601	8-759-105-47	IC UPD7503G-324	
IC602	8-759-200-77	IC TC4028BF	
IC603	8-757-991-00	IC CX7991	
IC604	8-759-100-93	IC UPC393G2	
IC605	8-759-200-82	IC TC4069UBF	

DISPLAY PANEL

ND601	1-806-917-11	DISPLAY PANEL, LIQUID CRYSTAL	

TRANSISTOR

Q601	8-729-100-66	TRANSISTOR 2SC1623	
Q602	8-729-100-66	TRANSISTOR 2SC1623	
Q603	8-729-100-66	TRANSISTOR 2SC1623	
Q604	8-729-100-66	TRANSISTOR 2SC1623	
Q605	8-729-100-66	TRANSISTOR 2SC1623	
Q606	8-729-100-66	TRANSISTOR 2SC1623	
Q607	8-729-100-76	TRANSISTOR 2SA812	
Q608	8-729-100-76	TRANSISTOR 2SA812	
Q609	8-729-901-01	TRANSISTOR DTC144EK	
Q610	8-729-901-01	TRANSISTOR DTC144EK	
Q611	8-729-901-01	TRANSISTOR DTC144EK	
Q612	8-729-901-06	TRANSISTOR DTA144EK	
Q613	8-729-100-66	TRANSISTOR 2SC1623	

RESISTOR

R601	1-216-109-00	METAL CHIP 330K 5% 1/10W	
R602	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R603	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R604	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R605	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R606	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R607	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R608	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R609	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R610	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R611	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R612	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R613	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R614	1-216-097-00	METAL CHIP 100K 5% 1/10W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R615	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R616	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R617	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R618	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R619	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R620	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R621	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R622	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R623	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R624	1-216-037-00	METAL CHIP	330	5%	1/10W	
R625	1-216-031-00	METAL CHIP	180	5%	1/10W	
R626	1-216-031-00	METAL CHIP	180	5%	1/10W	
R627	1-216-035-00	METAL CHIP	270	5%	1/10W	
R628	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R629	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R630	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R631	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R632	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R633	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R634	1-216-087-00	METAL CHIP	39K	5%	1/10W	
R635	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R636	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R639	1-216-099-00	METAL CHIP	120K	5%	1/10W	
R640	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R641	1-216-115-00	METAL CHIP	560K	5%	1/10W	
R642	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R643	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R644	1-216-109-00	METAL CHIP	330K	5%	1/10W	
R645	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R646	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R647	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R648	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R649	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R650	1-216-047-00	METAL CHIP	820	5%	1/10W	
R651	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R652	1-216-295-00	METAL CHIP	0	5%	1/10W	
R654	1-216-295-00	METAL CHIP	0	5%	1/10W	

SWITCH

Ref.No	Part No.	Description
S601	1-554-174-00	SWITCH, KEY BOARD
S602	1-554-174-00	SWITCH, KEY BOARD
S603	1-554-174-00	SWITCH, KEY BOARD
S604	1-554-364-00	SWITCH, SLIDE
S605	1-554-364-00	SWITCH, SLIDE
S606	1-554-174-00	SWITCH, KEY BOARD
S607	1-554-174-00	SWITCH, KEY BOARD
S608	1-554-174-00	SWITCH, KEY BOARD
S609	1-554-174-00	SWITCH, KEY BOARD
S610	1-554-174-00	SWITCH, KEY BOARD
S611	1-554-174-00	SWITCH, KEY BOARD
S612	1-570-134-11	SWITCH, SLIDE

CRYSTAL

Ref.No	Part No.	Description	Remark
X601	1-527-532-00	OSCILLATOR, CERAMIC 400KHz	

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*A-7060-242-A SV-14 BOARD, COMPLETE
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2-279-715-21 RIVET, NYLON

CAPACITOR

Ref.No	Part No.	Description					Remark
C501	1-124-236-00	ELECT	47MF	20%	10V		
C502	1-163-077-00	CERAMIC CHIP	0.1MF		50V		
C503	1-124-577-11	ELECT	82MF	20%	10V		
C504	1-163-077-00	CERAMIC CHIP	0.1MF		50V		
C505	1-124-577-11	ELECT	82MF	20%	10V		
C506	1-124-577-11	ELECT	82MF	20%	10V		
C507	1-124-233-00	ELECT	10MF	20%	16V		
C508	1-124-234-00	ELECT	22MF	20%	16V		
C510	1-124-255-00	ELECT	1MF	20%	50V		
C511	1-124-255-00	ELECT	1MF	20%	50V		
C512	1-124-255-00	ELECT	1MF	20%	50V		
C513	1-124-258-00	ELECT	3.3MF	20%	25V		
C515	1-124-233-00	ELECT	10MF	20%	16V		
C516	1-124-233-00	ELECT	10MF	20%	16V		
C517	1-124-233-00	ELECT	10MF	20%	16V		
C518	1-135-091-00	TANTAL. CHIP	1MF	20%	16V		
C519	1-163-077-00	CERAMIC CHIP	0.1MF		50V		
C521	1-124-245-00	ELECT	4.7MF	20%	16V		
C522	1-163-133-00	CERAMIC CHIP	470PF	5%	50V		
C523	1-163-075-00	CERAMIC CHIP	0.047MF	10%	25V		
C552	1-124-596-11	ELECT	27MF	20%	16V		
C553	1-124-596-11	ELECT	27MF	20%	16V		
C554	1-124-596-11	ELECT	27MF	20%	16V		
C558	1-124-275-00	ELECT	2.2MF	20%	35V		
C559	1-124-233-00	ELECT	10MF	20%	16V		
C560	1-124-275-00	ELECT	2.2MF	20%	35V		
C562	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V		
C563	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V		
C565	1-163-077-00	CERAMIC CHIP	0.1MF		50V		
C566	1-163-061-00	CERAMIC CHIP	0.015MF	10%	50V		
C567	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V		
C568	1-163-074-00	CERAMIC CHIP	0.033MF	10%	25V		
C569	1-163-077-00	CERAMIC CHIP	0.1MF		50V		
C570	1-163-077-00	CERAMIC CHIP	0.1MF		50V		
C571	1-163-077-00	CERAMIC CHIP	0.1MF		50V		
C572	1-124-287-00	ELECT	10MF	20%	10V		
C573	1-124-258-00	ELECT	3.3MF	20%	25V		

CONNECTOR

Ref.No	Part No.	Description
CN509	1-557-555-11	CABLE, FLAT (25 CORE)
CN510	*1-564-014-00	PIN, CONNECTOR 4P
CN511	*1-564-021-11	PIN, CONNECTOR 11P

When indicating parts by reference number, please include the board name.

SV-14

Ref.No	Part No.	Description	Remark
CN512	*1-564-014-00	PIN, CONNECTOR 4P	
		DIODE	
D501	8-719-200-35	DIODE E10QS03	
D502	8-719-200-35	DIODE E10QS03	
D504	8-719-200-35	DIODE E10QS03	
D506	8-719-100-03	DIODE 1S2835	
		IC	
IC501	8-759-202-45	IC CX20114	
IC502	8-752-003-60	IC CX20036	
IC504	8-759-100-94	IC UPC358G2	
IC505	8-759-201-01	IC TC4066BF	
		COIL	
L501	1-410-125-11	COIL, CHOKE 100UH	
L502	1-410-126-11	COIL, CHOKE 200UH	
L503	1-410-126-11	COIL, CHOKE 200UH	
		TRANSISTOR	
Q501	8-729-105-29	TRANSISTOR 2SA1385	
Q502	8-729-105-29	TRANSISTOR 2SA1385	
Q503	8-729-100-66	TRANSISTOR 2SC1623	
Q504	8-729-700-08	TRANSISTOR NJL7141E	
Q508	8-729-100-66	TRANSISTOR 2SC1623	
Q509	8-729-100-66	TRANSISTOR 2SC1623	
Q510	8-729-100-76	TRANSISTOR 2SA812	
Q511	8-729-100-76	TRANSISTOR 2SA812	
Q512	8-729-100-66	TRANSISTOR 2SC1623	
Q513	8-729-901-01	TRANSISTOR DTC144EK	
Q514	⚠.8-729-100-76	TRANSISTOR 2SA812	
Q515	⚠.8-729-901-01	TRANSISTOR DTC144EK	
Q516	8-729-100-76	TRANSISTOR 2SA812	
Q517	8-729-901-06	TRANSISTOR DTA144EK	
Q518	8-729-901-01	TRANSISTOR DTC144EK	
Q519	8-729-901-06	TRANSISTOR DTA144EK	
		RESISTOR	
R501	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R502	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R503	1-216-041-00	METAL CHIP 470 5% 1/10W	
R504	1-216-041-00	METAL CHIP 470 5% 1/10W	
R505	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R506	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R507	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R508	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R509	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R510	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R511	1-216-025-00	METAL CHIP 100 5% 1/10W	
R513	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R514	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R517	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R518	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R519	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R520	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R524	1-216-295-00	METAL CHIP 0 5% 1/10W	
R551	1-216-041-00	METAL CHIP 470 5% 1/10W	
R552	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R553	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R554	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R555	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R556	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R557	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R558	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R559	1-214-972-00	METAL 0.22 1% 1/4W	
R560	1-216-047-00	METAL CHIP 820 5% 1/10W	
R561	1-216-234-00	METAL CHIP 33K 5% 1/8W	
R562	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R563	1-216-304-11	METAL CHIP 3.3 5% 1/10W	
R564	1-216-304-11	METAL CHIP 3.3 5% 1/10W	
R565	1-216-304-11	METAL CHIP 3.3 5% 1/10W	
R566	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R568	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R569	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R570	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R571	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R572	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R573	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R574	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R575	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R576	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R578	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R581	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R582	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R583	1-216-107-00	METAL CHIP 270K 5% 1/10W	
R584	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R585	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R587	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R588	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R589	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R590	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R591	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R592	⚠.1-216-049-00	METAL CHIP 1K 5% 1/10W	
R593	⚠.1-216-025-00	METAL CHIP 100 5% 1/10W	
R595	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R596	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R597	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R598	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R599	1-216-295-00	METAL CHIP 0 5% 1/10W	
		VARIABLE RESISTOR	
RV501	1-230-529-11	RES, ADJ, METAL GLAZE 470K	
RV502	1-230-528-11	RES, ADJ, METAL GLAZE 220K	
RV503	1-230-528-11	RES, ADJ, METAL GLAZE 220K	
RV504	1-230-523-11	RES, ADJ, METAL GLAZE 10K	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
	*A-7060-243-A	MC-8 BOARD, COMPLETE *********************	
	2-279-715-21	RIVET, NYLON	

CAPACITOR

Ref.No	Part No.	Description				Remark
C501	1-124-233-00	ELECT	10MF	20%	16V	
C502	1-124-233-00	ELECT	10MF	20%	16V	
C505	1-124-234-00	ELECT	22MF	20%	10V	
C506	1-163-021-00	CERAMIC CHIP	0.01MF		50V	
C507	1-163-020-00	CERAMIC CHIP	0.0082MF	10%	50V	
C508	1-124-257-00	ELECT	2.2MF	20%	35V	
C509	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
C510	1-124-268-00	ELECT	0.22MF	20%	50V	
C512	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V	
C513	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V	
C514	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C515	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C516	1-124-287-00	ELECT	10MF	20%	10V	
C518	1-163-075-00	CERAMIC CHIP	0.047MF	10%	25V	
C519	1-124-275-00	ELECT	2.2MF	20%	35V	
C601	1-163-105-00	CERAMIC CHIP	33PF	5%	50V	
C602	1-163-105-00	CERAMIC CHIP	33PF	5%	50V	
C603	1-124-233-00	ELECT	10MF	20%	16V	
C604	1-124-222-00	ELECT	22MF	20%	6.3V	
C605	1-124-234-00	ELECT	22MF	20%	16V	
C606	1-163-127-00	CERAMIC CHIP	270PF	5%	50V	
C607	1-124-233-00	ELECT	10MF	20%	16V	
C608	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V	
C609	1-124-254-00	ELECT	0.68MF	20%	50V	
C610	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C611	1-163-064-00	CERAMIC CHIP	0.027MF	10%	50V	
C614	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V	

CONNECTOR

Ref.No	Part No.	Description	Remark
CN501	*1-564-013-00	PIN, CONNECTOR 3P	
CN502	*1-564-022-00	PIN, CONNECTOR 12P	
CN503	*1-564-028-00	PIN, CONNECTOR 3P	
CN505	*1-564-012-00	PIN, CONNECTOR 2P	
CN506	*1-562-583-11	CONNECTOR (FPC & FC)	
CN507	*1-564-014-00	PIN, CONNECTOR 4P	
CN508	*1-564-014-00	PIN, CONNECTOR 4P	

DIODE

Ref.No	Part No.	Description	Remark
D501	8-719-101-23	DIODE 1SS123	
D601	8-719-200-27	DIODE E10DS2	
D602	8-719-200-27	DIODE E10DS2	
D603	8-719-100-05	DIODE 1S2837	
D604	8-719-100-03	DIODE 1S2835	
D605	8-719-914-11	DIODE HZ4ALL	
D606	8-719-100-05	DIODE 1S2837	

IC

Ref.No	Part No.	Description	Remark
IC501	8-759-102-29	IC CX20115	
IC502	8-752-003-50	IC CX20035	
IC601	8-759-922-27	IC MB88505-342M	
IC602	8-759-201-80	IC TC4526BF	

COIL

Ref.No	Part No.	Description	Remark
L501	1-407-165-XX	MICRO INDUCTOR 47UH	
L601	1-410-125-11	COIL, CHOKE 100UH	
L602	1-408-987-21	MICRO INDUCTOR 330UH	

IC LINK

Ref.No	Part No.	Description	Remark
PS601⚠	1-532-685-11	LINK, IC (ICP-N20)	
PS602⚠	1-532-637-21	LINK, IC (ICP-F25)	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q502	8-729-100-66	TRANSISTOR 2SC1623	
Q503	8-729-901-04	TRANSISTOR DTA114EK	
Q504	8-729-100-66	TRANSISTOR 2SC1623	
Q505	8-729-100-76	TRANSISTOR 2SA812	
Q506	8-729-100-66	TRANSISTOR 2SC1623	
Q507	8-729-100-76	TRANSISTOR 2SA812	
Q508	8-729-100-76	TRANSISTOR 2SA812	
Q509	8-729-100-66	TRANSISTOR 2SC1623	
Q510	8-729-901-06	TRANSISTOR DTA144EK	
Q511	8-729-901-01	TRANSISTOR DTC144EK	
Q512	8-729-901-06	TRANSISTOR DTA144EK	
Q513	8-729-901-01	TRANSISTOR DTC144EK	
Q514	8-729-901-01	TRANSISTOR DTC144EK	
Q515	8-729-901-01	TRANSISTOR DTC144EK	
Q517	8-729-901-01	TRANSISTOR DTC144EK	
Q601	8-729-900-98	TRANSISTOR DTC143TK	
Q602	8-729-900-98	TRANSISTOR DTC143TK	
Q603	8-729-901-06	TRANSISTOR DTA144EK	
Q604	8-729-901-06	TRANSISTOR DTA144EK	
Q605	8-729-901-06	TRANSISTOR DTA144EK	
Q606	8-729-900-98	TRANSISTOR DTC143TK	
Q607	8-729-901-04	TRANSISTOR DTA114EK	
Q609	8-729-900-98	TRANSISTOR DTC143TK	
Q610	8-729-900-98	TRANSISTOR DTC143TK	
Q611	8-729-901-01	TRANSISTOR DTC144EK	
Q612	8-729-901-01	TRANSISTOR DTC144EK	
Q613	8-729-100-66	TRANSISTOR 2SC1623	
Q614	8-729-100-66	TRANSISTOR 2SC1623	
Q615	8-729-901-05	TRANSISTOR DTA124EK	
Q616	8-729-900-53	TRANSISTOR DTC114EK	
Q617	8-729-901-05	TRANSISTOR DTA124EK	
Q618	8-729-199-92	TRANSISTOR 2SD999	
Q619	8-729-202-86	TRANSISTOR 2SA1242LB	
Q620	8-729-100-66	TRANSISTOR 2SC1623	
Q621	8-729-100-76	TRANSISTOR 2SA812	
Q623	8-729-100-76	TRANSISTOR 2SA812	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
Q624	8-729-100-66	TRANSISTOR 2SC1623	
Q625	8-729-100-66	TRANSISTOR 2SC1623	
Q626	8-729-100-66	TRANSISTOR 2SC1623	
Q627	8-729-901-01	TRANSISTOR DTC144EK	
Q630	8-729-901-06	TRANSISTOR DTA144EK	
		RESISTOR	
R502	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R503	1-216-295-00	METAL CHIP 0 5% 1/10W	
R504	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R505	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R507	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R508	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R509	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R510	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R511	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R512	1-216-103-00	METAL CHIP 180K 5% 1/10W	
R513	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R514	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R515	1-216-095-00	METAL CHIP 82K 5% 1/10W	
R516	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R517	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R518	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R519	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R520	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R521	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R522	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R523	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R524	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R525	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R526	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R527	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R528	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R529	1-216-091-00	METAL CHIP 56K 5% 1/10W	
R530	1-216-295-00	METAL CHIP 0 5% 1/10W	
R531	1-216-295-00	METAL CHIP 0 5% 1/10W	
R588	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R601	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R602	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R603	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R604	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R605	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R606	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R607	1-216-162-00	METAL CHIP 33 5% 1/8W	
R608	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R609	1-216-170-00	METAL CHIP 68 5% 1/8W	
R610	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R611	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R612	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R613	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R614	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R615	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R616	1-216-073-00	METAL CHIP 10K 5% 1/10W	

Ref.No	Part No.	Description	Remark
R617	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R618	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R619	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R620	1-216-087-00	METAL CHIP 39K 5% 1/10W	
R621	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R622	1-216-087-00	METAL CHIP 39K 5% 1/10W	
R623	1-216-190-00	METAL CHIP 470 5% 1/8W	
R624	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R625	1-216-041-00	METAL CHIP 470 5% 1/10W	
R626	1-216-045-00	METAL CHIP 680 5% 1/10W	
R627	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R628	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R629 ⚠	1-216-194-91	METAL CHIP 680 5% 1/8W	
R630	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R631	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R632	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R635	1-216-134-00	METAL CHIP 2.2 5% 1/8W	
R636	1-216-134-00	METAL CHIP 2.2 5% 1/8W	
R637	1-216-134-00	METAL CHIP 2.2 5% 1/8W	
R638	1-216-134-00	METAL CHIP 2.2 5% 1/8W	
R639	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R640	1-216-091-00	METAL CHIP 56K 5% 1/10W	
R641	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R642	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R643	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R644	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R645	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R646 ⚠	1-216-194-91	METAL CHIP 680 5% 1/8W	
R647 ⚠	1-216-194-91	METAL CHIP 680 5% 1/8W	
R650	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R651	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R652	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R653	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R654	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R655	1-216-033-00	METAL CHIP 220 5% 1/10W	
R657	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
		VARIABLE RESISTOR	
RV601	1-230-520-11	RES, ADJ, METAL GLAZE 1K	
		CRYSTAL	
X601	1-567-346-11	OSCILLATOR, CERAMIC 6MHZ	

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*A-7060-226-A DS-8 BOARD, COMPLETE

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Ref.No	Part No.	Description	Remark
		CAPACITOR	
C601	1-163-081-00	CERAMIC CHIP 0.22MF 25V	
C602	1-163-081-00	CERAMIC CHIP 0.22MF 25V	
C603	1-124-258-00	ELECT 3.3MF 20% 25V	
C604	1-124-258-00	ELECT 3.3MF 20% 25V	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
C605	1-163-105-00	CERAMIC CHIP 33PF 5%	50V
C606	1-163-105-00	CERAMIC CHIP 33PF 5%	50V
C607	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C608	1-124-239-00	ELECT 6.8MF 20%	16V
C610	1-163-081-00	CERAMIC CHIP 0.22MF	25V
C611	1-163-081-00	CERAMIC CHIP 0.22MF	25V
C615	1-163-081-00	CERAMIC CHIP 0.22MF	25V
C616	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C617	1-163-081-00	CERAMIC CHIP 0.22MF	25V

CONNECTOR

Ref.No	Part No.	Description	Remark
CN010	1-564-548-11	PIN, BOARD TO BOARD (L TYPE)5P	
CN011	1-564-549-11	PIN, BOARD TO BOARD (L TYPE)10P	
CN012	1-564-549-11	PIN, BOARD TO BOARD (L TYPE)10P	

DIODE

Ref.No	Part No.	Description	Remark
D601	8-719-100-05	DIODE 1S2837	
D602	8-719-100-05	DIODE 1S2837	
D603	8-719-100-05	DIODE 1S2837	
D604	8-719-100-03	DIODE 1S2835	
D605	8-719-106-43	DIODE RD9.1M-B1	
D606	8-719-105-58	DIODE RD3.9M-B2	

IC

Ref.No	Part No.	Description	Remark
IC601	8-759-200-82	IC TC4069UBF	
IC602	8-759-200-65	IC TC4013BF	
IC603	8-759-910-84	IC MB88201-170N	
IC604	8-759-100-93	IC UPC393G2	

COIL

Ref.No	Part No.	Description	Remark
L601	1-408-987-21	MICRO INDUCTOR 330UH	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q601	8-729-901-06	TRANSISTOR DTA144EK	
Q602	8-729-901-06	TRANSISTOR DTA144EK	
Q603	8-729-901-01	TRANSISTOR DTC144EK	
Q604	8-729-100-66	TRANSISTOR 2SC1623	
Q605	8-729 901-01	TRANSISTOR DTC144EK	
Q606	8-729-100-66	TRANSISTOR 2SC1623	
Q607	8-729-901-01	TRANSISTOR DTC144EK	
Q608	8-729-900-98	TRANSISTOR DTC143TK	
Q609	8-729-901-01	TRANSISTOR DTC144EK	
Q610	8-729-100-66	TRANSISTOR 2SC1623	
Q611	8-729-901-01	TRANSISTOR DTC144EK	
Q612	8-729-901-01	TRANSISTOR DTC144EK	
Q613	8-729-901-01	TRANSISTOR DTC144EK	

RESISTOR

Ref.No	Part No.	Description	Remark
R601	1-216-033-00	METAL CHIP 220 5% 1/10W	
R602	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R603	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R604	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R605	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R606	1-216-033-00	METAL CHIP 220 5% 1/10W	
R607	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R608	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R609	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R610	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R611	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R612	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R613	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R614	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R615	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R616	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R617	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R618	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R619	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R620	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R621	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R622	1-216-037-00	METAL CHIP 330 5% 1/10W	
R623	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R624	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R625	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R626	1-216-039-00	METAL CHIP 390 5% 1/10W	
R627	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R628	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R629	1-216-295-00	METAL CHIP 0 5% 1/10W	
R630	1-216-039-00	METAL CHIP 390 5% 1/10W	

CRYSTAL

Ref.No	Part No.	Description	Remark
X601	1-567-143-00	OSCILLATOR, CERAMIC 6MHz	

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*A-7060-227-A HS-5 BOARD, COMPLETE

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CAPACITOR

Ref.No	Part No.	Description	Remark
C601	1-163-021-00	CERAMIC CHIP 0.01MF 10%	50V
C602	1-125-373-11	DOUBLE LAYERS 22000MF	5.5V

CONNECTOR

Ref.No	Part No.	Description	Remark
CN005	1-564-610-21	CONNECTOR, BOARD TO BOARD	
CN403	*1-564-027-00	PIN, CONNECTOR 2P	
CN404	*1-564-028-00	PIN, CONNECTOR 3P	

DIODE

Ref.No	Part No.	Description	Remark
D602	8-719-105-82	DIODE RD5.1M-B2	
D603	8-719-106-16	DIODE RD6.8M-B1	

IC LINK

Ref.No	Part No.	Description	Remark
PS601⚠	1-532-605-11	LINK, IC (ICP-N10)	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q601	8-729-100-66	TRANSISTOR 2SC1623	
Q602	8-729-113-33	TRANSISTOR 2SB733-4	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
Q603	8-729-700-08	TRANSISTOR NJL7141E	
Q604	8-729-159-64	TRANSISTOR 2SD596	
Q605	8-729-900-53	TRANSISTOR DTC114EK	
Q607	8-729-202-86	TRANSISTOR 2SA1242LB	
Q608	8-729-100-76	TRANSISTOR 2SA812	
Q609	8-729-901-01	TRANSISTOR DTC144EK	

RESISTOR

Ref.No	Part No.	Description	Remark
R601	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R602	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R603	1-216-190-00	METAL CHIP 470 5% 1/8W	
R604	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R605	1-216-190-00	METAL CHIP 470 5% 1/8W	
R606	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R607	1-216-168-00	METAL CHIP 56 5% 1/8W	
R608	1-216-168-00	METAL CHIP 56 5% 1/8W	
R609	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R610	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R612	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R613	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R614	1-216-109-00	METAL CHIP 330K 5% 1/10W	
R615	1-216-073-00	METAL CHIP 10K 5% 1/10W	

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV601	1-230-524-11	RES, ADJ, METAL GLAZE 22K	

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*A-7060-221-A RS-5 BOARD, COMPLETE
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*3-686-814-01 HOLDER, REEL SENSOR

CAPACITOR

Ref.No	Part No.	Description	Remark
C501	1-124-234-00	ELECT 22MF 20% 10V	
C601	1-124-225-00	ELECT 100MF 20% 6.3V	

CONNECTOR

Ref.No	Part No.	Description	Remark
CN515	*1-564-012-00	PIN, CONNECTOR 2P	
CN516	*1-564-012-00	PIN, CONNECTOR 2P	

DIODE

Ref.No	Part No.	Description	Remark
D501	8-719-100-03	DIODE 1S2835	
D502	8-719-100-03	DIODE 1S2835	
D503	8-719-100-03	DIODE 1S2835	

IC

Ref.No	Part No.	Description	Remark
IC501	8-759-910-70	IC MB3763PS	
IC502	8-759-908-81	IC MB3763PF	

DIODE

Ref.No	Part No.	Description	Remark
PH601	8-719-751-42	DIODE NJL5141E	
PH602	8-719-751-42	DIODE NJL5141E	
PH603	8-719-751-42	DIODE NJL5141E	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q601	8-729-100-66	TRANSISTOR 2SC1623	
Q602	8-729-100-66	TRANSISTOR 2SC1623	
Q603	8-729-100-66	TRANSISTOR 2SC1623	
Q604	8-729-100-66	TRANSISTOR 2SC1623	
Q605	8-729-100-66	TRANSISTOR 2SC1623	
Q606	8-729-100-66	TRANSISTOR 2SC1623	
Q607	8-729-100-66	TRANSISTOR 2SC1623	

RESISTOR

Ref.No	Part No.	Description	Remark
R601	1-216-180-00	METAL CHIP 180 5% 1/8W	
R602	1-216-180-00	METAL CHIP 180 5% 1/8W	
R603	1-216-160-00	METAL CHIP 27 5% 1/8W	
R604	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R605	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R606	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R607	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R608	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R609	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R610	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R611	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R612	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R613	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R614	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R615	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R616	1-216-180-00	METAL CHIP 180 5% 1/8W	

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*A-7060-222-A FE-4 BOARD, COMPLETE
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CAPACITOR

Ref.No	Part No.	Description	Remark
C101	1-163-021-00	CERAMIC CHIP 0.01MF 50V	
C102	1-163-021-00	CERAMIC CHIP 0.01MF 50V	
C103	1-163-111-00	CERAMIC CHIP 56PF 5% 50V	
C104	1-163-119-00	CERAMIC CHIP 120PF 5% 50V	
C105	1-163-021-00	CERAMIC CHIP 0.01MF 50V	
C106	1-163-034-00	CERAMIC CHIP 0.033MF 50V	

CONNECTOR

Ref.No	Part No.	Description	Remark
CN113	*1-564-002-00	PIN, CONNECTOR 3P	

COIL

Ref.No	Part No.	Description	Remark
L101	1-408-969-21	MICRO INDUCTOR 8.2UH	
L102	⚠.1-408-948-21	MICRO INDUCTOR 220UH	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q101	8-729-100-76	TRANSISTOR 2SA812	
Q102	8-729-117-54	TRANSISTOR 2SA1175	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
		RESISTOR	
R101	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R102	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R103	1-216-037-00	METAL CHIP 330 5% 1/10W	
R104	1-216-041-00	METAL CHIP 470 5% 1/10W	
R105	1-216-308-00	METAL CHIP 4.7 5% 1/10W	
	*A-7060-229-A	ZM-4 BOARD, COMPLETE	
		CAPACITOR	
C702	1-124-604-00	ELECT 330MF 20% 10V	
C703	1-123-822-00	ELECT 47MF 20% 10V	
C704	1-123-645-00	ELECT 33MF 20% 10V	
C705	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C706	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C707	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C708	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C709	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C710	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
		CONNECTOR	
CN711	*1-564-001-11	PIN, CONNECTOR 2P	
CN712	*1-564-002-00	PIN, CONNECTOR 3P	
CN713	*1-564-001-11	PIN, CONNECTOR 2P	
CN714	*1-564-002-00	PIN, CONNECTOR 3P	
CN715	*1-564-008-00	PIN, CONNECTOR 9P	
CN716	*1-564-003-00	PIN, CONNECTOR 4P	
CN717	*1-564-003-00	PIN, CONNECTOR 4P	
		COIL	
L701	1-407-718-00	MICRO INDUCTOR 1.2MMH	
		IC LINK	
PS701 ⚠	1-532-637-11	LINK, IC (ICP-N25)	
		TRANSISTOR	
Q701	8-729-100-76	TRANSISTOR 2SA812	
Q702	8-729-100-76	TRANSISTOR 2SA812	
Q703	8-729-103-72	TRANSISTOR 2SD1005	
Q704	8-729-100-66	TRANSISTOR 2SC1623	
Q705	8-729-100-66	TRANSISTOR 2SC1623	
		RESISTOR	
R701	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R702	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R703	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R704	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R705	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R706	1-216-158-00	METAL CHIP 22 5% 1/8W	
R707	1-216-158-00	METAL CHIP 22 5% 1/8W	

Ref.No	Part No.	Description	Remark
R709	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R710	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R711	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R712	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R713	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R714	1-247-210-00	CARBON 56 5% 1/2W	
R715	1-216-049-00	METAL CHIP 1K 5% 1/10W	
	*A-7060-231-A	RR-12 BOARD, COMPLETE	
		CAPACITOR	
C751	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C752	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C753	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C754	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C755	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C756	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C757	1-124-229-00	ELECT 33MF 20% 6.3V	
C758	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C759	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
		DIODE	
D751	8-719-918-67	DIODE GL-1EG102	
		RESISTOR	
R751	1-246-993-00	CARBON 470 5% 1/8W	F
R752	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R754	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R756	1-216-073-00	METAL CHIP 10K 5% 1/10W	
		SWITCH	
S751	1-554-973-11	SWITCH, SLIDE	
S752	1-554-174-00	SWITCH, KEY BOARD	
S753	1-554-364-00	SWITCH, SLIDE	
S754	1-554-945-12	SWITCH, SLIDE	
S755	1-553-977-00	SWITCH, SLIDE	
S756	1-554-541-12	SWITCH, TACT	
	*A-7060-230-A	MA-14 BOARD, COMPLETE	
		CAPACITOR	
C401	1-124-225-00	ELECT 100MF 20% 6.3V	
C402	1-124-225-00	ELECT 100MF 20% 6.3V	
C403	1-131-401-00	TANTALUM 0.068MF 20% 35V	
C404	1-131-401-00	TANTALUM 0.068MF 20% 35V	
C406	1-163-141-00	CERAMIC CHIP 0.001MF 10% 50V	
C408	1-124-245-00	ELECT 4.7MF 20% 35V	
C409	1-124-224-00	ELECT 47MF 20% 6.3V	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
C410	1-163-021-00	CERAMIC CHIP 0.01MF 10%	50V

CONNECTOR

Ref.No	Part No.	Description	Remark
CN013	*1-564-878-11	PIN, BOARD TO BOARD(L TYPE) 4P	
CN406	*1-564-014-00	PIN, CONNECTOR 4P	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q401	8-729-162-44	TRANSISTOR 2SB624-BV4	
Q402	8-729-271-23	TRANSISTOR 2SC2712	
Q403	8-729-271-23	TRANSISTOR 2SC2712	

RESISTOR

Ref.No	Part No.	Description	Remark
R401	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R402	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R403	1-216-162-00	METAL CHIP 33 5% 1/8W	
R404	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R405	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R406	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R408	1-216-035-00	METAL CHIP 270 5% 1/10W	
R409	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R410	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R411	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R412	1-216-043-00	METAL CHIP 560 5% 1/10W	
R413	1-216-037-00	METAL CHIP 330 5% 1/10W	

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*1-616-645-11 MJ-9 BOARD
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DIODE

Ref.No	Part No.	Description	Remark
D401	8-719-106-17	DIODE RD6.8M-B2	

JACK

Ref.No	Part No.	Description	Remark
J401	1-507-957-11	JACK (2 GANG)	

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*A-7070-024-A LD-1 BOARD, COMPLETE
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DIODE

Ref.No	Part No.	Description	Remark
D901	8-719-928-54	DIODE GL-450S	

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MS-4 BOARD
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CAPACITOR

Ref.No	Part No.	Description	Remark
C901	1-163-038-00	CERAMIC CHIP 0.1MF	25V

CONNECTOR

Ref.No	Part No.	Description	Remark
CN905	*1-564-613-11	PIN, CONNECTOR (HOOK TYPE)	

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LS-9 BOARD
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CONNECTOR

Ref.No	Part No.	Description	Remark
CN904	*1-564-613-21	PIN, CONNECTOR (HOOK TYPE)	

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*1-613-579-12 EP-2 BOARD
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JACK

Ref.No	Part No.	Description	Remark
J491	1-507-921-00	JACK	

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*1-613-581-13 FU-34 BOARD
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Ref.No	Part No.	Description	Remark
	*1-533-146-00	HOLDER, FUSE	

FUSE

Ref.No	Part No.	Description	Remark
F901 ⚠	1-532-237-11	FUSE, TIME-LAG 3.15A 250V	

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*1-613-580-11 EF-3 BOARD
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CAPACITOR

Ref.No	Part No.	Description	Remark
C772	1-161-039-00	CERAMIC 0.001MF 10%	25V
C773	1-161-039-00	CERAMIC 0.001MF 10%	25V
C774	1-161-013-00	CERAMIC 0.01MF 10%	25V
C775	1-161-039-00	CERAMIC 0.001MF 10%	25V
C776	1-161-039-00	CERAMIC 0.001MF 10%	25V

CONNECTOR

Ref.No	Part No.	Description	Remark
CN772	1-562-183-00	SOCKET 8P	

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*A-7060-204-A AZ-2 BOARD, COMPLETE
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A complete AZ-2 board is stocked with a complete PA-7 board as a gang for repair parts. They can not be ordered individually.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
		CAPACITOR				
C020	1-123-622-00	ELECT	22MF	20%	16V	
C021	1-123-611-00	ELECT	1MF	20%	50V	
C022	1-123-616-00	ELECT	4.7MF	20%	25V	
C023	1-123-616-00	ELECT	4.7MF	20%	25V	
C024	1-123-821-00	ELECT	47MF	20%	16V	
C025	1-124-472-11	ELECT	470MF	20%	10V	
C026	1-124-290-00	ELECT	47MF	20%	10V	
C027	1-124-444-00	ELECT	220MF	20%	10V	
C028	1-124-363-00	ELECT	330MF	20%	10V	
C029	1-163-145-00	CERAMIC CHIP	0.0015MF	10%	50V	
C030	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C031	1-163-104-00	CERAMIC CHIP	30PF	5%	50V	
C032	1-163-104-00	CERAMIC CHIP	30PF	5%	50V	
C033	1-123-622-00	ELECT	22MF	20%	16V	
C034	1-123-821-00	ELECT	47MF	20%	16V	
C035	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
		CONNECTOR				
CN002	*1-564-012-00	PIN, CONNECTOR 2P				
CN003	*1-564-001-11	PIN, CONNECTOR 2P				
CN004	*1-564-001-11	PIN, CONNECTOR 2P				
CN005	*1-564-001-11	PIN, CONNECTOR 2P				
		DIODE				
D001	8-719-100-23	DIODE RD4.3E-B2				
D002	8-719-101-36	DIODE RD3.3E-L1				
D003	8-719-101-61	DIODE RD6.2E-L2				
D004	8-719-101-61	DIODE RD6.2E-L2				
D010	8-719-815-55	DIODE 1S1555				
D011	8-719-815-55	DIODE 1S1555				
D012	8-719-815-55	DIODE 1S1555				
		IC				
IC010	9-986-323-01	IC IR9331				
IC011	8-759-100-95	IC UPC324G2				
IC012	9-986-324-01	IC UPD49G834				
		IC LINK				
PS001⚠	1-532-727-11	LINK, IC (ICP-N5)				
		TRANSISTOR				
Q010	8-729-109-44	TRANSISTOR 2SK94				
Q011	8-729-109-44	TRANSISTOR 2SK94				
Q012	8-729-100-66	TRANSISTOR 2SC1623				
Q013	8-729-101-07	TRANSISTOR 2SB798				
Q014	8-729-101-07	TRANSISTOR 2SB798				
Q015	8-729-100-66	TRANSISTOR 2SC1623				
Q016	8-729-100-66	TRANSISTOR 2SC1623				
Q017	8-729-100-66	TRANSISTOR 2SC1623				
Q018	8-729-101-07	TRANSISTOR 2SB798				
Q019	8-729-101-07	TRANSISTOR 2SB798				
Q020	8-729-199-92	TRANSISTOR 2SD999				

Ref.No	Part No.	Description				Remark
Q021	8-729-199-92	TRANSISTOR 2SD999				
Q022	8-729-101-07	TRANSISTOR 2SB798				
Q023	8-729-100-66	TRANSISTOR 2SC1623				
Q024	8-729-100-66	TRANSISTOR 2SC1623				
Q025	8-729-199-92	TRANSISTOR 2SD999				
Q026	8-729-199-92	TRANSISTOR 2SD999				
Q027	8-729-100-66	TRANSISTOR 2SC1623				
Q028	8-729-100-66	TRANSISTOR 2SC1623				
		RESISTOR				
R050	1-216-033-00	METAL CHIP	220	5%	1/10W	
R051	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R052	1-216-033-00	METAL CHIP	220	5%	1/10W	
R053	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R054	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R055	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R056	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R057	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R058	1-216-041-00	METAL CHIP	470	5%	1/10W	
R059	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R060	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R061	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R062	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R063	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R064	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R066	1-216-037-00	METAL CHIP	330	5%	1/10W	
R067	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R068	1-216-329-11	METAL CHIP	5.1K	1%	1/10W	
R069	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R070	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R071	1-247-125-00	CARBON	560	5%	1/4W	
R072	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R073	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R074	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R075	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R076	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R077	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R078	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R079	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R080	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R081	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R082	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R083	1-247-688-11	CARBON	10	5%	1/4W	
R084	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R085	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R086	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R087	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R088	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R089	1-216-037-00	METAL CHIP	330	5%	1/10W	
R090	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R091	1-216-295-00	METAL CHIP	0	5%	1/10W	
R092	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R093	1-216-033-00	METAL CHIP	220	5%	1/10W	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R094	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R095	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R096	1-246-412-15	CARBON	3	5%	1/4W	
R097	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R099	1-247-085-00	CARBON	12	5%	1/4W	
R100	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R101	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R102	1-247-702-11	CARBON	150	5%	1/4W	
R103	1-247-767-00	CARBON	2.2	5%	1/6W	

THERMISTOR

Ref.No	Part No.	Description
THP001 ⚠	1-806-887-11	THERMISTOR (POSITIVE) 15

VARIABLE RESISTOR

Ref.No	Part No.	Description
RV010	1-228-891-00	RES, ADJ, METAL GLAZE 10K
RV011	1-228-891-00	RES, ADJ, METAL GLAZE 10K

CRYSTAL

Ref.No	Part No.	Description
X001	1-567-143-00	OSCILLATOR, CERAMIC

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*A-7060-204-A PA-7 BOARD, COMPLETE
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A complete PA-7 board is stocked with a complete AZ-2 board as a gang for repair parts. They can not be ordered individually.

CAPACITOR

Ref.No	Part No.	Description			
C001	1-124-290-00	ELECT	47MF	20%	10V
C002	1-124-290-00	ELECT	47MF	20%	10V
C003	1-123-617-00	ELECT	10MF	20%	16V
C004	1-163-089-00	CERAMIC CHIP	6PF	0.25PF	50V
C005	1-163-089-00	CERAMIC CHIP	6PF	0.25PF	50V
C006	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C007	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C008	1-163-145-00	CERAMIC CHIP	0.0015MF	10%	50V
C009	1-163-005-00	CERAMIC CHIP	470PF	10%	50V
C010	1-163-034-00	CERAMIC CHIP	0.033MF		50V
C011	1-163-145-00	CERAMIC CHIP	0.0015MF	10%	50V
C012	1-163-005-00	CERAMIC CHIP	470PF	10%	50V
C013	1-163-034-00	CERAMIC CHIP	0.033MF		50V
C014	1-163-081-00	CERAMIC CHIP	0.22MF		25V
C015	1-163-081-00	CERAMIC CHIP	0.22MF		25V
C016	1-123-617-00	ELECT	10MF	20%	16V
C017	1-123-617-00	ELECT	10MF	20%	16V

DIODE

Ref.No	Part No.	Description
D001	8-719-815-55	DIODE 1S1555

IC

Ref.No	Part No.	Description	Remark
IC001	8-759-100-95	IC UPC324G2	
IC002	8-759-100-95	IC UPC324G2	

TRANSISTOR

Ref.No	Part No.	Description
Q001	8-729-100-66	TRANSISTOR 2SC1623
Q002	8-729-100-66	TRANSISTOR 2SC1623
Q003	8-729-109-46	TRANSISTOR 2SK94
Q004	8-729-109-46	TRANSISTOR 2SK94
Q005	8-729-109-46	TRANSISTOR 2SK94
Q006	8-729-109-46	TRANSISTOR 2SK94

RESISTOR

Ref.No	Part No.	Description			
R001	1-216-121-00	METAL CHIP	1M	5%	1/10W
R002	1-216-037-00	METAL CHIP	330	5%	1/10W
R003	1-216-045-00	METAL CHIP	680	5%	1/10W
R004	1-216-109-00	METAL CHIP	330K	5%	1/10W
R005	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R006	1-216-109-00	METAL CHIP	330K	5%	1/10W
R007	1-216-045-00	METAL CHIP	680	5%	1/10W
R008	1-216-037-00	METAL CHIP	330	5%	1/10W
R009	1-216-121-00	METAL CHIP	1M	5%	1/10W
R010	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R011	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R012	1-216-099-00	METAL CHIP	120K	5%	1/10W
R013	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R014	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R015	1-216-099-00	METAL CHIP	120K	5%	1/10W
R016	1-216-097-00	METAL CHIP	100K	5%	1/10W
R017	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R018	1-216-085-00	METAL CHIP	33K	5%	1/10W
R019	1-216-049-00	METAL CHIP	1K	5%	1/10W
R020	1-216-085-00	METAL CHIP	33K	5%	1/10W
R021	1-216-049-00	METAL CHIP	1K	5%	1/10W
R022	1-216-097-00	METAL CHIP	100K	5%	1/10W
R023	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R024	1-216-029-00	METAL CHIP	150	5%	1/10W
R025	1-247-879-00	CARBON	100K	5%	1/6W
R026	1-247-879-00	CARBON	100K	5%	1/6W
R028	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R029	1-216-085-00	METAL CHIP	33K	5%	1/10W
R030	1-216-084-00	METAL CHIP	30K	5%	1/10W
R031	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R032	1-216-115-00	METAL CHIP	560K	5%	1/10W
R033	1-216-081-00	METAL CHIP	22K	5%	1/10W
R034	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R035	1-216-085-00	METAL CHIP	33K	5%	1/10W
R036	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R037	1-216-084-00	METAL CHIP	30K	5%	1/10W
R038	1-216-115-00	METAL CHIP	560K	5%	1/10W
R039	1-216-081-00	METAL CHIP	22K	5%	1/10W
R040	1-216-073-00	METAL CHIP	10K	5%	1/10W
R041	1-216-073-00	METAL CHIP	10K	5%	1/10W
R042	1-216-029-00	METAL CHIP	150	5%	1/10W

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
R043	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R044	1-216-065-00	METAL CHIP	4.7K	5%	1/10W

VARIABLE RESISTOR

Ref.No	Part No.	Description
RV001	1-228-895-00	RES, ADJ, METAL GLAZE 100K
RV002	1-228-895-00	RES, ADJ, METAL GLAZE 100K

****

*1-616-648-11 SS-57 BOARD
****

SWITCH

Ref.No	Part No.	Description
S702	1-553-349-00	SWITCH, PUSH

****

*1-616-649-11 SS-58 BOARD
****

SWITCH

Ref.No	Part No.	Description
S703	1-553-349-00	SWITCH, PUSH

****

*A-7060-103-A VF-4 BOARD, COMPLETE
****

Part No.	Description
1-526-793-21	SOCKET ASSY, CRT
*3-662-075-00	COVER, CONTROL

CAPACITOR

Ref.No	Part No.	Description			Remark
C001	1-124-229-00	ELECT	33MF	20%	10V
C002	1-163-209-00	CERAMIC CHIP	0.0015MF	5%	50V
C003	1-124-255-00	ELECT	1MF	20%	50V
C004	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C005	1-124-233-00	ELECT	10MF	20%	16V
C006	1-163-131-00	CERAMIC CHIP	390PF	10%	50V
C007	1-163-023-00	CERAMIC CHIP	0.015MF	10%	50V
C008	1-163-023-00	CERAMIC CHIP	0.015MF	10%	50V
C009	1-124-233-00	ELECT	10MF	20%	16V
C010	1-124-233-00	ELECT	10MF	20%	16V
C011	1-131-361-00	TANTALUM	2.2MF	10%	20V
C012	1-163-209-00	CERAMIC CHIP	0.0015MF	5%	50V
C013	1-163-137-00	CERAMIC CHIP	680PF	10%	50V
C014	1-124-604-00	ELECT	330MF	20%	10V
C015	1-124-471-00	ELECT	1000MF	20%	6.3V
C016	1-163-033-00	CERAMIC CHIP	0.022MF	10%	50V
C017	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C018	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C019	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C020	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C021	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C022	1-163-005-00	CERAMIC CHIP	470PF	10%	50V
C023	1-124-140-00	ELECT	220MF	20%	6.3V
C024	1-124-604-00	ELECT	330MF	20%	10V
C025	1-124-255-00	ELECT	1MF	20%	50V
C026	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C027	1-163-018-00	CERAMIC CHIP	0.0056MF	10%	50V
C028	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C029	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V
C030	1-163-015-00	CERAMIC CHIP	0.0033MF	10%	50V
C031	1-102-038-00	CERAMIC	0.001MF	99%	500V
C033	1-102-038-00	CERAMIC	0.001MF	99%	500V
C034	1-163-023-00	CERAMIC CHIP	0.015MF	10%	50V
C036	1-123-619-00	ELECT	4.7MF	20%	50V
C043	1-124-255-00	ELECT	1MF	20%	50V
C044	1-163-038-00	CERAMIC CHIP	0.1MF		25V

CONNECTOR

Ref.No	Part No.	Description
CN001	*1-564-269-00	PIN, CONNECTOR 3P
CN002	*1-564-269-00	PIN, CONNECTOR 3P
CN003	*1-564-002-00	PIN, CONNECTOR 3P

DIODE

Ref.No	Part No.	Description
D001	8-719-101-23	DIODE 1SS123
D002	8-719-101-23	DIODE 1SS123
D003	8-719-100-03	DIODE 1S2835
D004	8-719-105-90	DIODE RD5.6M-B1
D006	8-719-904-05	DIODE 1N4005
D007	8-719-904-05	DIODE 1N4005
D008	8-719-904-05	DIODE 1N4005
D012	8-719-101-23	DIODE 1SS123
D013	8-719-100-03	DIODE 1S2835

IC

Ref.No	Part No.	Description
IC001	8-759-314-41	IC HA11441

COIL

Ref.No	Part No.	Description
L001	1-407-167-XX	MICRO INDUCTOR 68UH
L002	1-459-549-11	COIL, FERRITE (HLC)
L003	1-408-970-21	MICRO INDUCTOR 10UH

TRANSISTOR

Ref.No	Part No.	Description
Q001	8-729-100-66	TRANSISTOR 2SC1623
Q002	8-729-600-18	TRANSISTOR 2SC633-SP8
Q003	8-729-100-76	TRANSISTOR 2SA812
Q004	8-729-100-66	TRANSISTOR 2SC1623
Q005	8-729-216-32	TRANSISTOR 2SA1163
Q006	8-729-100-66	TRANSISTOR 2SC1623
Q007	8-729-100-76	TRANSISTOR 2SA812
Q008	8-729-100-66	TRANSISTOR 2SC1623
Q009	8-729-805-13	TRANSISTOR 2SC1475-13
Q010	⚠8-729-100-66	TRANSISTOR 2SC1623

RESISTOR

Ref.No	Part No.	Description			Remark
R001	1-216-079-00	METAL CHIP	18K	5%	1/10W
R002	1-216-097-00	METAL CHIP	100K	5%	1/10W

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
R003	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R004	1-216-091-00	METAL CHIP 56K 5% 1/10W	
R005	1-216-107-00	METAL CHIP 270K 5% 1/10W	
R006	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R007	1-216-001-00	METAL CHIP 10 5% 1/10W	
R008	⚠.1-216-025-91	METAL CHIP 100 5% 1/10W	
R009	1-216-031-00	METAL CHIP 180 5% 1/10W	
R010	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R011	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R012	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R013	1-216-087-00	METAL CHIP 39K 5% 1/10W	
R014	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R015	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R016	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R017	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R018	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R020	1-216-001-00	METAL CHIP 10 5% 1/10W	
R021	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R022	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R023	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R024	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R025	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R026	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R027	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R028	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R029	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R030	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R031	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R032	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R033	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R034	1-216-107-00	METAL CHIP 270K 5% 1/10W	
R035	1-216-131-11	METAL CHIP 2.7M 5% 1/10W	
R036	1-216-131-11	METAL CHIP 2.7M 5% 1/10W	
R037	1-216-035-00	METAL CHIP 270 5% 1/10W	
R038	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R039	1-216-019-00	METAL CHIP 56 5% 1/10W	
R040	⚠.1-216-015-91	METAL CHIP 39 5% 1/10W	
R041	⚠.1-216-298-91	METAL CHIP 2.2 5% 1/10W	
R042	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R046	1-216-295-00	METAL CHIP 0 5% 1/10W	
R049	1-216-296-00	METAL CHIP 0 5% 1/8W	
R050	1-216-295-00	METAL CHIP 0 5% 1/10W	
R051	1-216-296-00	METAL CHIP 0 5% 1/8W	
R053	1-216-296-00	METAL CHIP 0 5% 1/8W	
R055	1-216-295-00	METAL CHIP 0 5% 1/10W	
R056	1-216-295-00	METAL CHIP 0 5% 1/10W	
R060	1-216-295-00	METAL CHIP 0 5% 1/10W	
R061	1-216-295-00	METAL CHIP 0 5% 1/10W	
R063	1-216-295-00	METAL CHIP 0 5% 1/10W	
R065	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R066	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R070	1-216-103-00	METAL CHIP 180K 5% 1/10W	
R071	1-216-117-00	METAL CHIP 580K 5% 1/10W	

Ref.No	Part No.	Description	Remark
R072	1-216-113-00	METAL CHIP 470K 5% 1/10W	
		VARIABLE RESISTOR	
RV001	1-226-703-00	RES, ADJ, METAL GLAZE 10K	
RV002	1-226-702-00	RES, ADJ, METAL GLAZE 2.2K	
RV003	1-226-772-00	RES, ADJ, METAL GLAZE 4.7K	
RV004	1-226-774-00	RES, ADJ, METAL GLAZE 47K	
RV005	1-228-762-00	RES, ADJ, METAL GLAZE 1M	
RV006	1-230-041-00	RES, ADJ, METAL GLAZE 2.2M	
		TRANSFORMER	
T001	⚠.1-439-342-21	TRANSFORMER ASSY, FLYBACK	

****

*1-614-872-11 TL-16 BOARD
****

Ref.No	Part No.	Description	Remark
		DIODE	
D009	8-719-812-44	DIODE TL0124	
D010	8-719-812-31	DIODE TLR123	
D011	8-719-812-42	DIODE TLY124	

****

*1-614-871-11 TL-15 BOARD
****

Ref.No	Part No.	Description	Remark
		DIODE	
D005	8-719-800-24	DIODE TLR147	

****

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

MISCELLANEOUS
****

Ref.No	Part No.	Description	Remark
	A-7040-003-A	M-SW ASSY	
	X-3686-549-1	L-SW ASSY	
	1-535-535-11	TERMINAL, SHAFT GROUND	
	8-750-010-23	CCD IMAGER BLOCK (IU021-K1AA)	
	8-810-510-90	MICROPHONE ASSY, BUILT-IN (C-2008)	
C902	1-161-057-11	CAP, CERAMIC 0.033MF	
CNP772	1-556-824-31	CORD, CONNECTION (WITH PLUG) 8P	
DR901 ⚠	1-464-376-21	CONVERTER, DC-DC	
DR902 ⚠	1-464-377-21	CONVERTER, DC-DC (CAMERA)	
L901 ⚠	1-451-251-21	DEFLECTION YOKE (MONOCHROME)	
M901 ⚠	A-7040-009-A	MOTOR ASSY, L (LOADING)	
M902	8-838-077-01	MOTOR, DC (BHF-2800B) (CAPSTAN)	
M903 ⚠	8-835-110-01	MOTOR, DC (DNR-5301A) (CONTROL)	
M906 ⚠	8-835-127-01	F MOTOR (DNR-6300D) (FOCUS)	
PM901 ⚠	1-454-377-11	SOLENOID, PLUNGER	
S901	1-553-226-00	SWITCH, LEAF (CASSETTE LOCK)	
S902	1-554-942-11	SWITCH, PUSH (RECOG)	
S904	1-554-944-11	SWITCH, PUSH (ZOOM)	
V901 ⚠	1-546-051-11	CATHODE-RAY TUBE, B/W (CIM30P4)	

****

ACCESSORIES AND PAKING MATERIALS
****

Part No.	Description	Remark
3-686-846-02	BELT, SHOULDER	
*3-696-041-11	INDIVIDUAL CARTON	
*3-696-031-01	CUSHION (UPPER)	
*3-696-032-01	CUSHION (LOWER)	
3-760-728-11	MANUAL, INSTRUCTION	
3-760-728-41	MANUAL, INSTRUCTION (AEP,WG MODEL)	
3-760-728-51	MANUAL, INSTRUCTION (AEP,WG MODEL)	

****

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

SECTION 7
ADJUSTMENT

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5. RV AND TP LOCATION 265

1. CAMERA SECTION ADJUSTMENT

1-1. LIST OF SERVICING JIGS

Ref No.	Name	Part Code	Use
J-1	Filter (W14)	J-6080-830-A	R Gain, B Gain Adjustment
	Filter (C22)	J-6080-829-A	R Gain, B Gain Adjustment
	Filter (For fine weather)	J-6080-058-A	MR2, MB2 Adjustment
J-2	ND Filter 0.4	J-6080-806-A	IRIS Adjustment
	ND Filter 0.1	J-6080-807-A	LX Adjustment, IRIS Adjustment
	ND Filter 1.0	J-6080-808-A	LX Adjustment, MAX Gain Adjustment
	ND Filter 0.9	J-6080-833-A	MAX Gain Adjustment
J-3	Pattern box PTB-100	J-6020-490-A	
J-4	Pattern box colour chart	J-6020-250-A	
J-5	Camera block fixing jig	J-6080-849-A	
J-6	Extension cord A (8p)	J-6080-819-A	
	Extension cord B (9p)	J-6080-821-A	

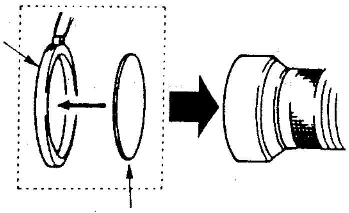
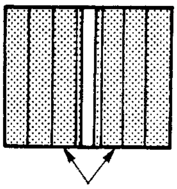
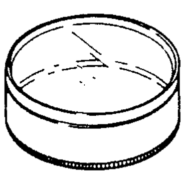
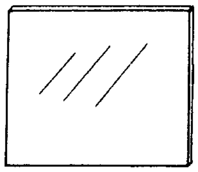
Make the following jigs by yourself. (1) Black cap  Cut black paper.	G Pedestal Adjustment (1), (2) R. B Pedestal Adjustment MPX Adjustment, Carrier Balance Adjustment Setup Adjustment
(2) High brightness pattern  Black paper Cover with black paper except 1/2 of the white width of the J-4 colour bar chart. Then photograph with a standard picture frame.	White Clip Adjustment (2)

Fig. 1-1

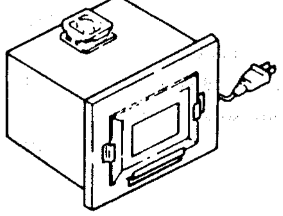
J-1



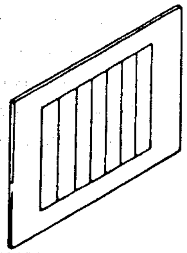
J-2



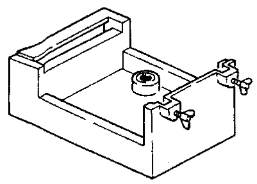
J-3



J-4



J-5



J-6

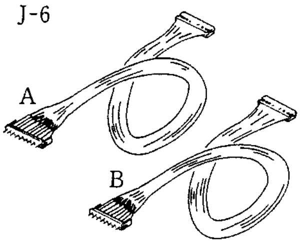


Fig. 1-2

1-2. PREPARATION

See 2. **DISASSEMBLY** to remove cabinets and boards.

1) Set the white balance switch to ☼ (indoor) when not specified.
2) Set the focus switch to auto when not specified.
3) Change the entire monitor screen to white for the all-white pattern. (Remove the colour bar chart from the pattern box and rotate the zoom ring fully to the TELE side.

1-3. SETUP AND CONNECTION DIAGRAM

1) Attach extension cord (9P) to CN715 (white) of ZM-4 board.
2) Attach extension cord (8P) to CN705 (red) of ME-2 board.
3) Set to fixed jig the Ⓐ part of camera block section. (Fig. 1-3 a)
4) After setting the fixed jig of the camera block section, tighten with butterfly nut. (Fig. 1-3 b)
5) Set up the camera block and pattern box as shown in Fig. 1-4.
6) Protect and secure with insulating tape, etc. the leading through section of the RR-12 board.

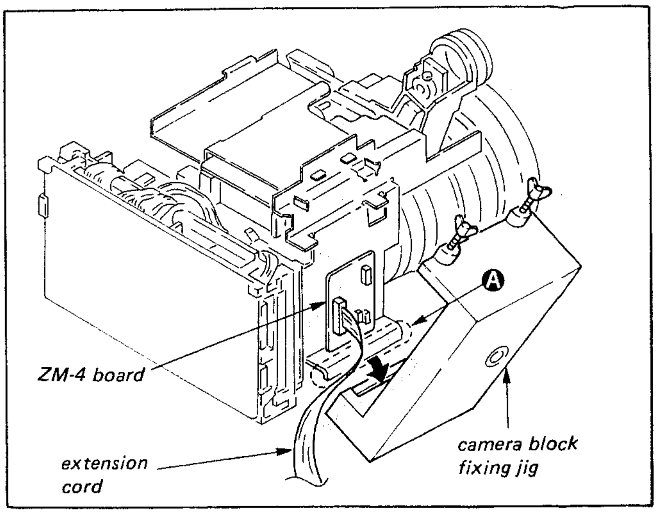

Ⓐ
ZM-4 board
extension cord
camera block fixing jig

Fig. 1-3(a)

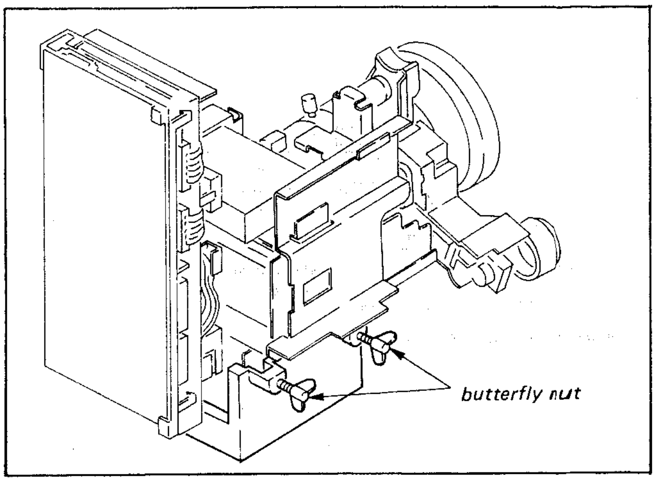

butterfly nut

Fig. 1-3(b)

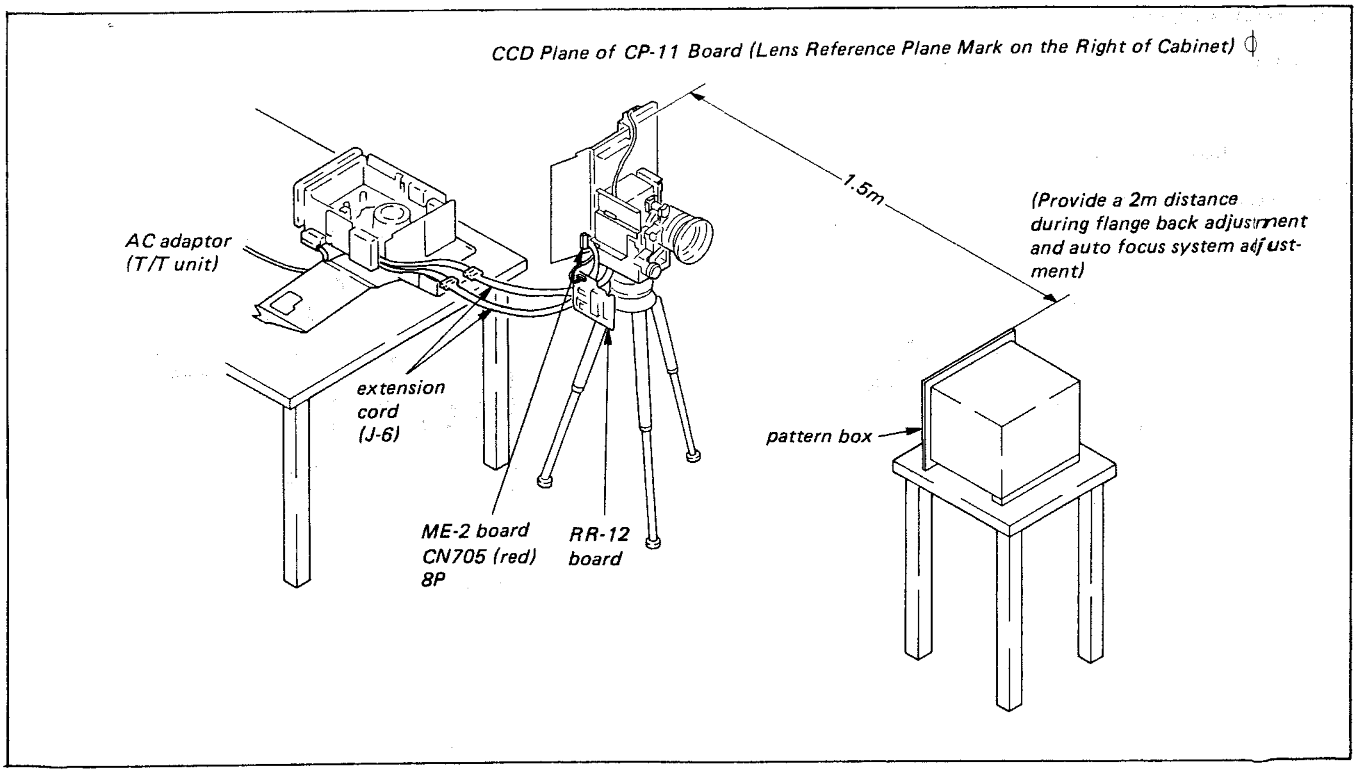

CCD Plane of CP-11 Board (Lens Reference Plane Mark on the Right of Cabinet) ⌽
1.5m
(Provide a 2m distance during flange back adjustment and auto focus system adjustment)
AC adaptor (T/T unit)
extension cord (J-6)
ME-2 board CN705 (red) 8P
RR-12 board
pattern box

Fig. 1-4

3) Use a pan head as shown in Fig. 1-5 when setting up the camera block on a desk.

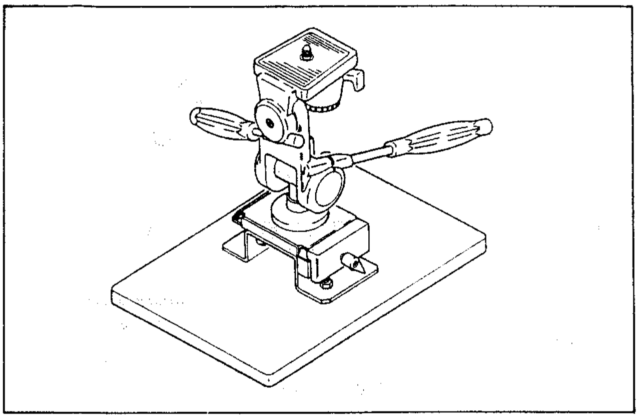
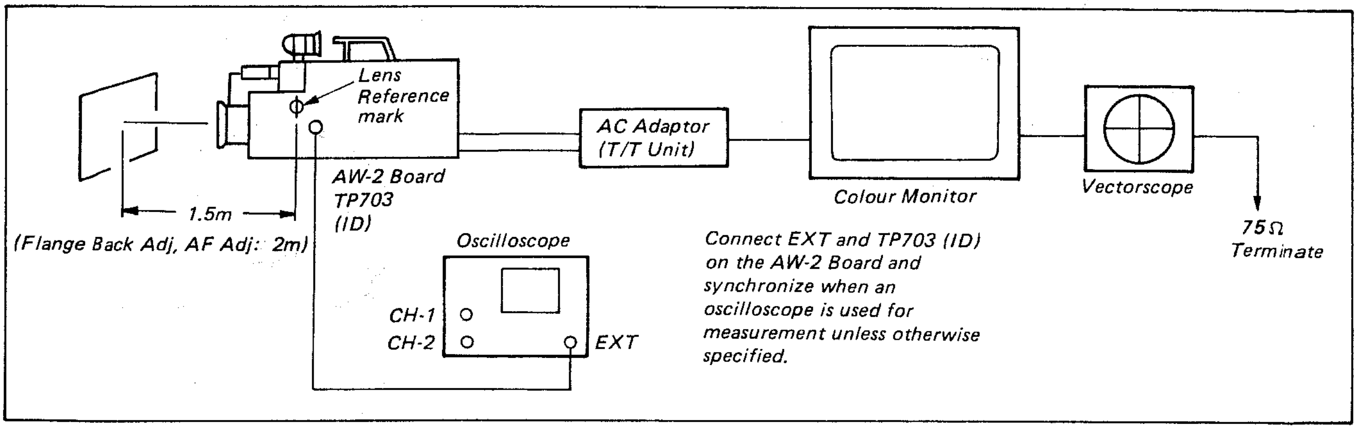


Fig. 1-5

4) Connection Diagram


Lens
Reference
mark
AW-2 Board
TP703
(ID)
1.5m
(Flange Back Adj, AF Adj: 2m)
AC Adaptor
(T/T Unit)
Colour Monitor
Vectorscope
75Ω
Terminate
Oscilloscope
CH-1
CH-2
EXT

Connect EXT and TP703 (ID) on the AW-2 Board and synchronize when an oscilloscope is used for measurement unless otherwise specified.

Fig. 1-6

1-4. PRECAUTIONS

1) Adjust the picture frame as shown in Fig. 1-7 when using a colour bar chart for adjustment. (Standard picture frame)
2) See **2. DISASSEMBLY** to remove cabinets and boards.

STANDARD PICTURE FRAME

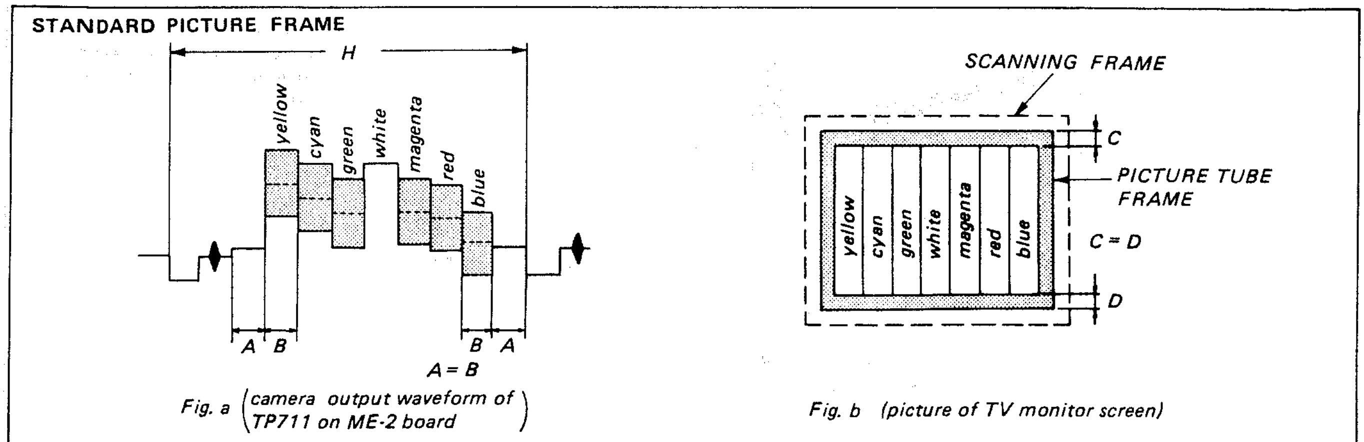

H
yellow
cyan
green
white
magenta
red
blue
A
B
B
A
A = B
SCANNING FRAME
C
PICTURE TUBE
FRAME
C = D
D

Fig. a (*camera output waveform of TP711 on ME-2 board*)

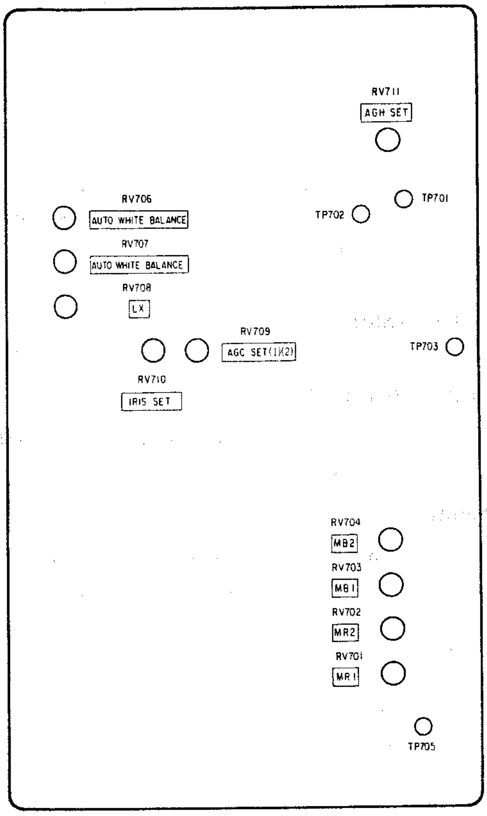
Fig. b (picture of TV monitor screen)

Adjust the zooming of camera and the tripod so that the output waveform of Fig. a and the picture of Fig. b can be obtain.

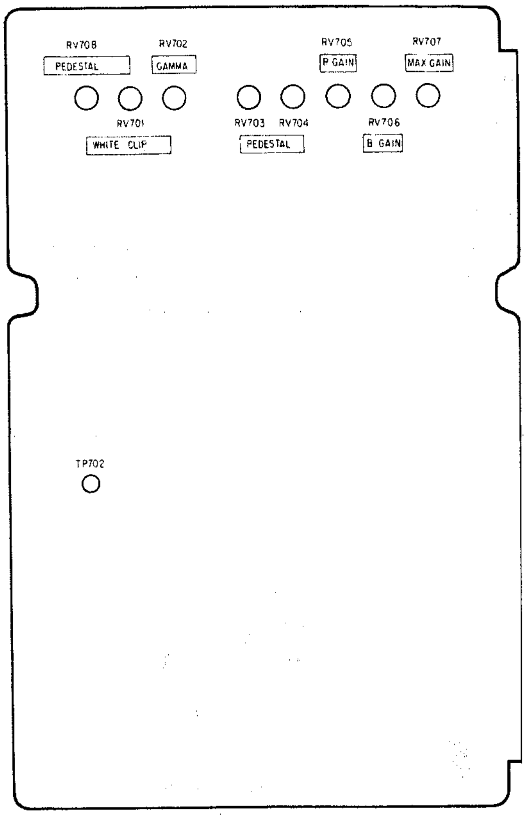
Fig. 1-7

1-5. RV AND TP LOCATION

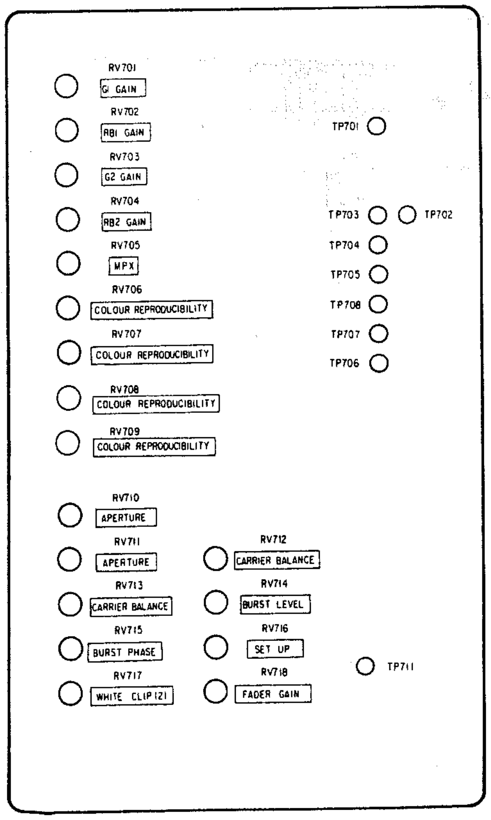
AW-2 BOARD (Component Side)


RV711
AGH SET
TP701
TP702
RV706
AUTO WHITE BALANCE
RV707
AUTO WHITE BALANCE
RV708
LX
RV709
AGC SET(1)(2)
TP703
RV710
IRIS SET
RV704
MB2
RV703
MB1
RV702
MR2
RV701
MR1
TP705

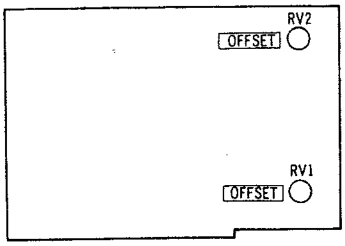
CP-11 BOARD (Component Side)


RV708
PEDESTAL
RV702
GAMMA
RV705
R GAIN
RV707
MAX GAIN
RV701
WHITE CLIP
RV703
RV704
PEDESTAL
RV706
B GAIN
TP702

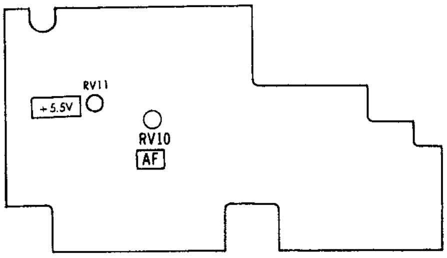
ME-2 BOARD (Component Side)


RV701
G1 GAIN
RV702
RB1 GAIN
RV703
G2 GAIN
RV704
RB2 GAIN
RV705
MPX
RV706
COLOUR REPRODUCIBILITY
RV707
COLOUR REPRODUCIBILITY
RV708
COLOUR REPRODUCIBILITY
RV709
COLOUR REPRODUCIBILITY
RV710
APERTURE
RV711
APERTURE
RV712
CARRIER BALANCE
RV713
CARRIER BALANCE
RV714
BURST LEVEL
RV715
BURST PHASE
RV716
SET UP
RV717
WHITE CLIP(2)
RV718
FADER GAIN
TP701
TP703
TP702
TP704
TP705
TP708
TP707
TP706
TP711

PA-7 BOARD (Solder Side)


RV2
OFFSET
RV1
OFFSET

AZ-2 BOARD (Solder Side)


RV11
+5.5V
RV10
AF

1-6. FLANGE BACK ADJUSTMENT

Equipment: Siemens star
Allen wrenches (1.5mm and 3mm)
⊖ Screwdriver

Adjustment Method:

1) Photograph a Siemens star at a distance of 2m from the lens and align the centers of the monitor screen and of Siemens star.
2) Check that the lens zoom lever can be rotated fully to WIDE and TELE and rotate fully to the WIDE side. (Also check that the monitor screen is zooming.)
3) Set the lens focus ring index to the center, "2".

1.5 2 3
|

4) Loosen the hexagon socket set screw using an Allen wrench.
5) Turn the adjusting screw using the ⊖ screwdriver. (See Fig. 1-8.)

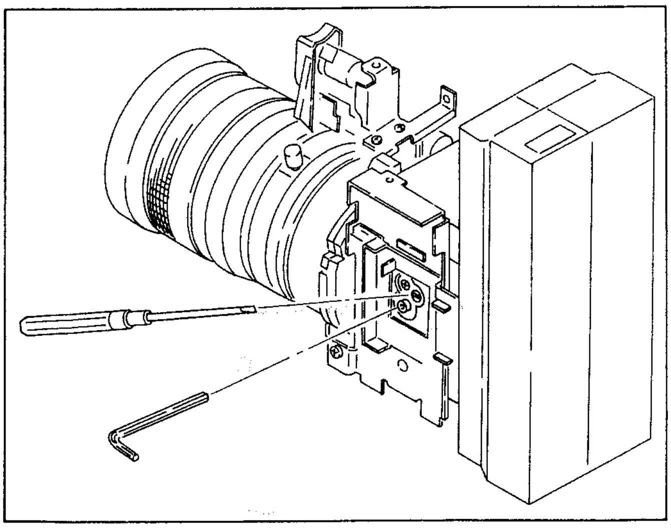


Fig. 1-8

6) Adjust by rotating the camera flange back adjusting screw two or three times right and left until a wedge in the center of the Siemens star becomes clearest while watching the monitor screen.

Note: Do not over-rotate the adjusting screw in one direction only.

7) Securely hold the flange back adjusting pin and tighten the hexagon socket set screw.
8) Set the zoom lever fully to TELE and rotate the focus ring. Be sure that the position in which the wedge becomes most clear is within 1.8mm from the center.

5 7 10(ft)
1.5 2 3 (m)
→|←
1.8mm 1.8mm

9) Set the zoom lever to WIDE and rotate the focus ring. The position in which the wedge becomes most clear shall be in the following range.

5 7 10(ft)
1.5 2 3 (m)
|←——→|

10) Securely hold the flange back adjusting pin not to rotate, tighten the hexagon socket set screw, then paint lock paint on the screw head.

1-7. IRIS ADJUSTMENT

Equipment: Oscilloscope
CP-11 Board TP701

Subject: Colour bar chart (standard picture frame: See Fig. 1-7 on page 187.)

Adjustment Method:

1) Rotate RV710 on the AW-2 Board and adjust the signal level to 155 ±5mV. (When adjusting, adjust from high to low level.)
2) Cover an ND filter 0.5 in front of the lens.
3) Check that the signal level becomes 155 ±10mV when zoomed in case the ND filter 0.5 in front of the lens is removed. (See Fig. 1-9.)
4) Repeat Steps 1) to 3) until adjustment is made, if the result is not satisfactory.

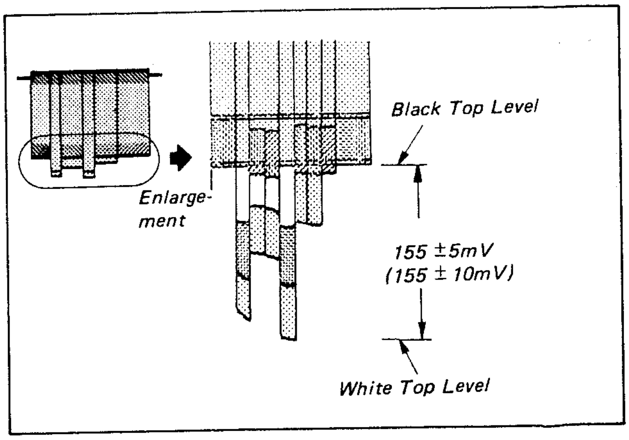


Fig. 1-9

Note: Backlight correction (iris) check up

1) Check that the signal level is 75 ±30mV when the IRIS selector switch is set to HIGH LIGHT.
2) Also check that the signal level is 210 ±40mV when set to BACK LIGHT.

1-8. AGC SETTING ADJUSTMENT

Equipment: Oscilloscope
AW-2 Board TP701

Subject: Colour bar chart (standard picture frame)

Adjustment Method:

Rotate RV709 on the AW-2 Board and adjust the signal level to 200 ±5mVp-p. (See Fig. 1-10.)

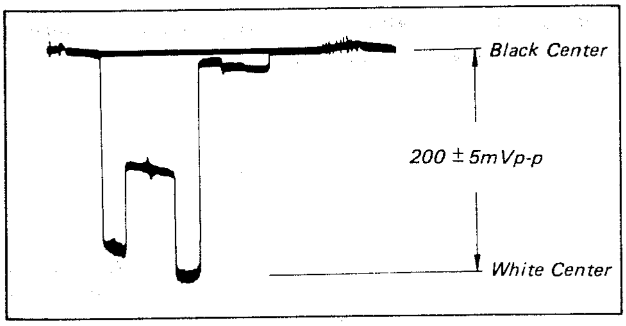


Fig. 1-10

1-9. AUTO WHITE BALANCE ADJUSTMENT (1)

Equipment: Oscilloscope
AW-2 Board CH1 TP701
CH2 TP702
MODE – ADD, POLARITY – INV

Subject: All white pattern

Adjustment Method:

1) Set the white balance switch to "AUTO" (☐).
2) Rotate RV706 and RV707 on the AW-2 Board and adjust the waveform to be linear. (See Fig. 1-11.)

Note: Press the auto white balance switch, check and adjust when rotating RV706 and RV707.

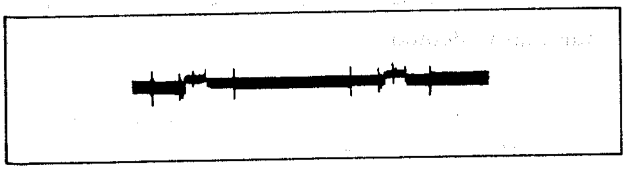


Fig. 1-11

1-10. G PEDESTAL ADJUSTMENT (1)

Equipment: Oscilloscope
ME-2 Board TP701

Subject: All black (Cover a black cap on the lens.)

Adjustment Method:

1) Rotate RV701 and RV702 on the CP-11 Board counter-clockwise and preset the output level to maximum.
2) Rotate RV708 on the CP-11 Board and temporarily adjust the pedestal level to 40 ±5mV. (See Fig. 1-12.)

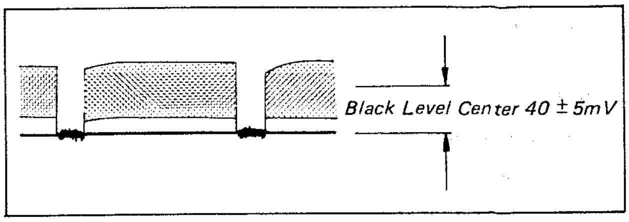


Fig. 1-12

1-11. GAMMA ADJUSTMENT

Equipment: Oscilloscope
ME-2 Board TP701

Subject: Colour bar chart (standard picture frame)

Adjustment Method:

Rotate RV702, which is preset in 1-10 G Pedestal Adjustment (1), on the CP-11 Board and adjust the signal level to 380 ±5mVp-p. (See Fig. 1-13.)

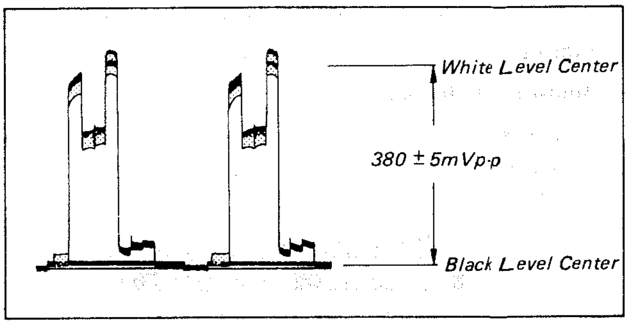


Fig. 1-13

1-12. WHITE CLIP ADJUSTMENT (1)

Equipment: Oscilloscope
ME-2 Board TP701

Subject: Colour bar chart (standard picture frame)

Adjustment Method:

Rotate RV701, which is preset in 1-10 G Pedestal Adjustment (1), on the CP-11 Board and adjust the signal level to 360 ±5mVp-p. (See Fig. 1-14.)

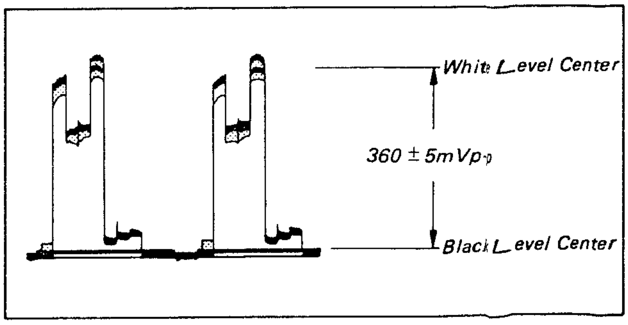


Fig. 1-14

1-13. G PEDESTAL ADJUSTMENT (2)

Equipment: Oscilloscope
ME-2 Board TP701

Subject: All black (Cover a black cap on the lens.)

Adjustment Method:

Rotate RV708 on the CP-11 Board and adjust the pedestal level to 25 ±5mV. (See Fig. 1-15.)

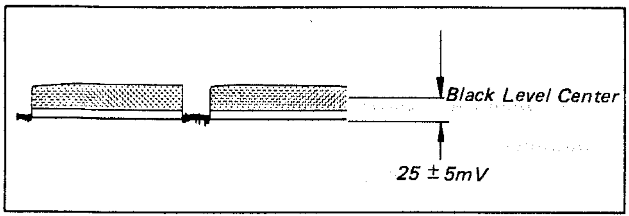


Fig. 1-15

1-14. R AND B PEDESTAL ADJUSTMENT

Equipment: Oscilloscope
ME-2 Board CH1 TP701
CH2 TP702
MODE – ADD, POLARITY – INV

Subject: All black (Cover a black cap on the lens.)

Adjustment Method:

Rotate RV703 and RV704 on the CP-11 Board and adjust the waveform to be linear. (See Fig. 1-16.)

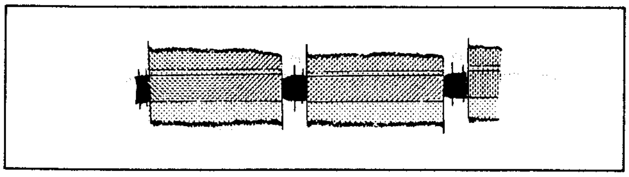


Fig. 1-16

1-15. MPX ADJUSTMENT

(USE A VECTORSCOPE)

Equipment: Vectorscope

Subject: All black (Cover a black cap on the lens.)

Adjustment Method:

Rotate RV705 on the ME-2 Board and adjust until the black spots on the vectorscope become one dot. (See Fig. 1-17.)

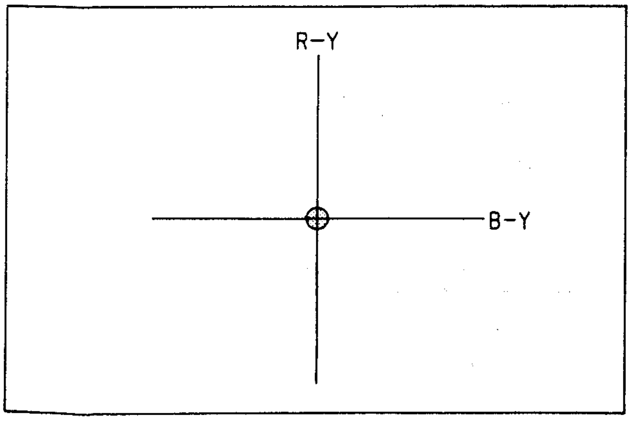


Fig. 1-17

(USE A OSCILLOSCOPE)

Equipment: Oscilloscope
ME-2 Board CH1 (X): Q710 emitter (B-Y)
CH2 (Y): TP709 (R-Y)
MODE: X-Y

Subject: All black (Cover a black cap on the lens.)

Adjustment Method:

Rotate RV705 (MPX) on the ME-2 Board and adjust black spots to merge into one spot.

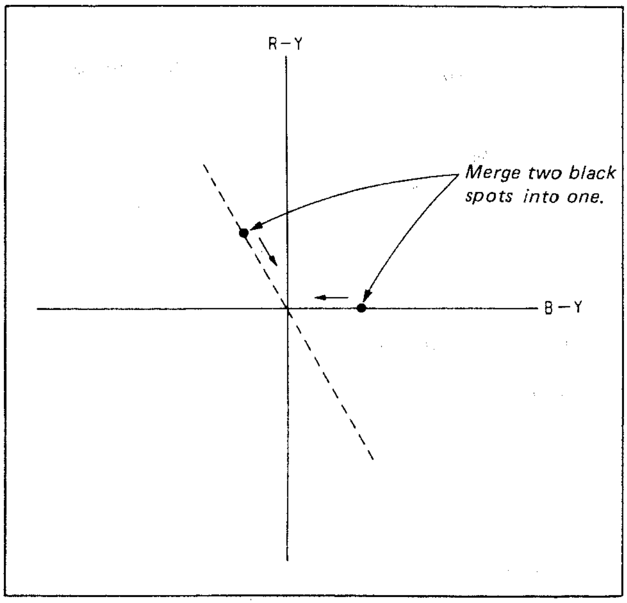


Fig. 1-18

1-16. CARRIER BALANCE ADJUSTMENT

(USE A VECTORSCOPE)

Equipment: Vectorscope

Subject: All black (Cover a black cap on the lens.)

Adjustment Method:

1) Set the GAIN knob of the vectorscope to “MAX”.
2) Rotate RV712 and RV713 on the ME-2 Board and adjust the black spot to the origin. (See Fig. 1-19.)

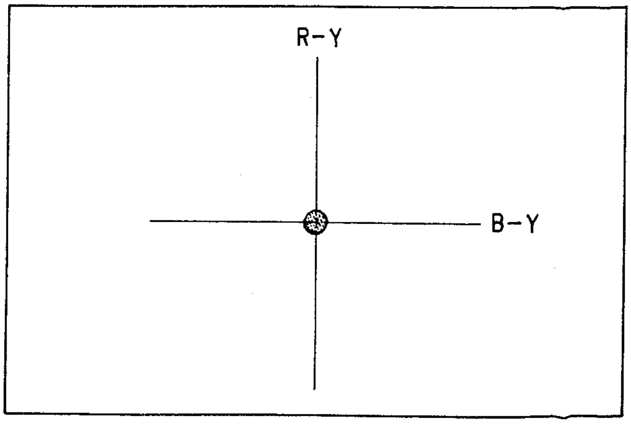


Fig. 1-19

3) Set the GAIN knob of the vectorscope to "CAL". Check that the black spot is located less than the origin ϕ2mm this time. (See Fig. 1-20.)

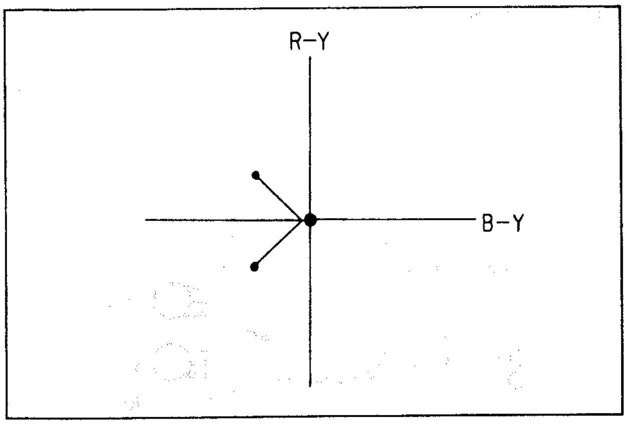


Fig. 1-20

(USE A OSCILLOSCOPE)

Equipment: Oscilloscope
ME-2 Board TP711 (V. O)

Subject: Colour bar chart (standard picture frame)

Adjustment Method:

Rotate RV712 (CB9) RV713 (CB) on the ME-2 Board to minimize the amplitude of the black part.

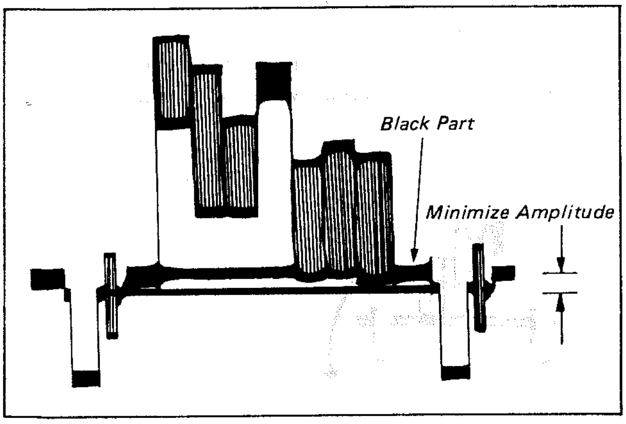
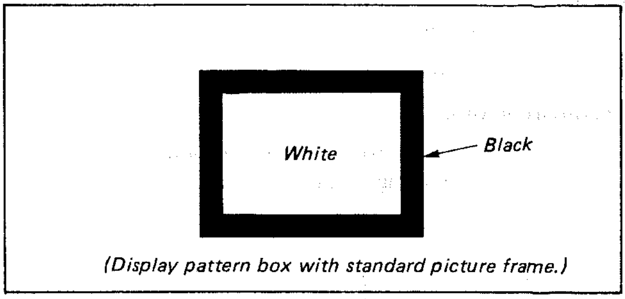


Fig. 1-21

1-17. G_1 AND G_2 GAIN ADJUSTMENT

Equipment: Oscilloscope
ME-2 Board (a) CH1 TP703(G_0)
CH2 TP704(G_1)
(b) CH1 TP703(G_0)
CH2 TP705(G_2)
MODE – ADD
POLARITY – INV

Subject: White pattern (See Fig. 1-22.)



(Display pattern box with standard picture frame.)

Fig. 1-22

Adjustment Method:

1) Set the oscilloscope probe to (a) and rotate RV701 on the ME-2 Board until the waveform becomes linear. (See Fig. 1-23.)
2) Set the oscilloscope probe to (b) and rotate RV703 on the ME-2 Board until the waveform becomes linear. (See Fig. 1-23.)

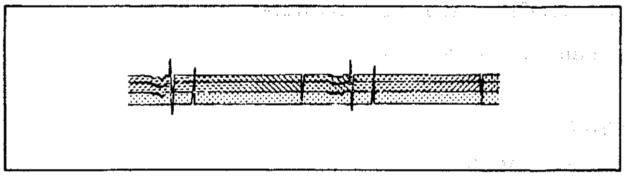


Fig. 1-23

1-18. RB_1 AND RB_2 GAIN ADJUSTMENT

Equipment: Oscilloscope
ME-2 Board (a) CH1 TP706(RB_0)
CH2 TP707(RB_1)
(b) CH1 TP706(RB_0)
CH2 TP708(RB_2)
MODE – ADD
POLARITY – INV

Subject: White pattern (See Fig. 1-22.)

Adjustment Method:

1) Set the oscilloscope probe to (a) and rotate RV702 on the ME-2 Board until the waveform becomes linear. (See Fig. 1-23.)
2) Set the oscilloscope probe to (b) and rotate RV704 on the ME-2 Board until the waveform becomes linear. (See Fig. 1-23.)

1-19. SETTING ADJUSTMENT

Equipment: Oscilloscope
ME-2 Board TP711

Subject: All black (Cover a black cap on the lens.)

Adjustment Method:

Rotate RV716 on the ME-2 Board and adjust the signal level to 15 ±5mV (See Fig. 1-24.)

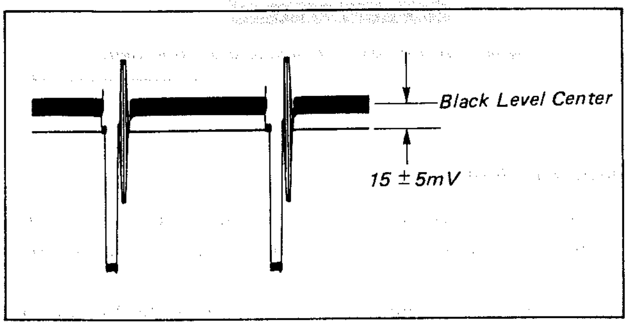

Black Level Center
15 ± 5mV

Fig. 1-24

1-20. FADER GAIN ADJUSTMENT

Equipment: Oscilloscope
ME-2 Board TP711

Subject: Colour bar chart (Standard picture frame)

Adjustment Method:

1) Set the white balance switch to "AUTO" (☐).
2) Preset RV717 on the ME-2 Board to maximize the white level.
3) Rotate RV718 on the ME-2 Board and adjust the signal level to 335 $^{+0}_{-10}$mV. (See Fig. 1-25.)

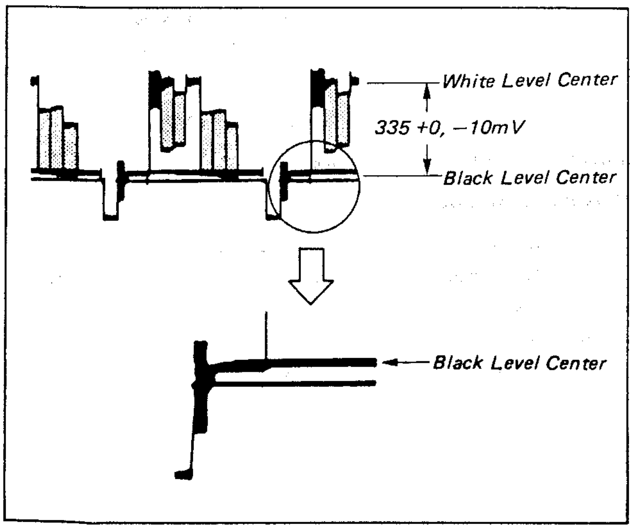

White Level Center
335 +0, −10mV
Black Level Center
Black Level Center

Fig. 1-25

1-21. APERTURE ADJUSTMENT

Equipment: Oscilloscope
ME-2 Board TP711

Subject: Colour bar chart (Standard picture frame)

Adjustment Method:

1) Set the white balance switch to "AUTO" (☐).
2) Preset RV710 and RV711 on the ME-2 Board as shown in Fig. 1-26.

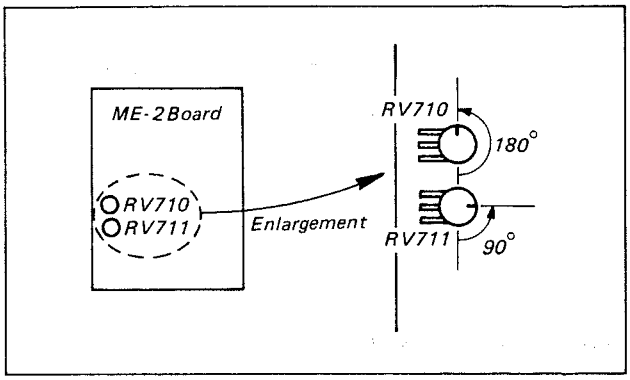

ME-2Board
RV710
RV711
Enlargement
RV710
180°
RV711
90°

Fig. 1-26

3) Focus correctly and move the camera right and left slightly. Fix the camera when the aperture becomes maximum.
4) Rotate RV711 on the ME-2 Board and adjust the aperture level between white and magenta to 90 ±10mV. (See Fig. 1-27.)
5) Rotate RV710 on the ME-2 Board and adjust the aperture level between white and magenta to 40 ±10mV. (See Fig. 1-27.)

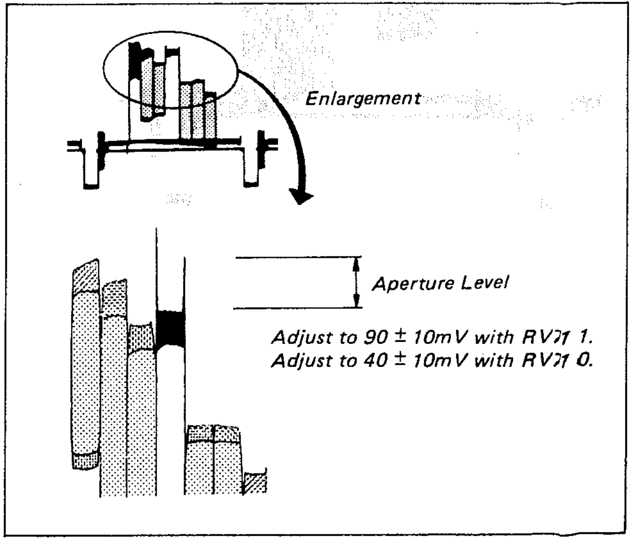

Enlargement
Aperture Level
Adjust to 90 ± 10mV with RV711.
Adjust to 40 ± 10mV with RV710.

Fig. 1-27

1-22. WHITE CLIP ADJUSTMENT (2)

Equipment: Oscilloscope
ME-2 Board TP711

Subject: High brightness pattern

Adjustment Method:

1) Rotate RV717 on the ME-2 Board and adjust the signal level to 420 ±10mV. (See Fig. 1-28.)

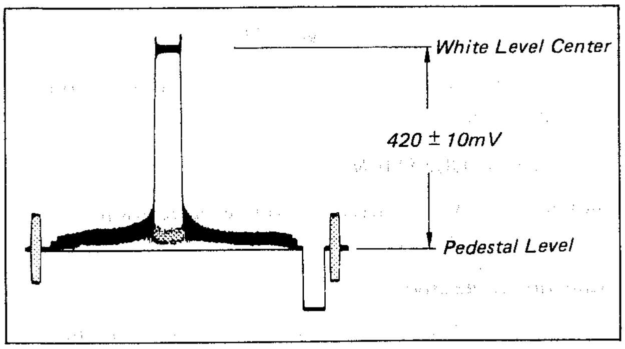


Fig. 1-28

2) Repeat adjusting and checking until the fader gain, setting up, and white clip adjustments meet the required levels.

1-23. AUTO WHITE BALANCE ADJUSTMENT (2) (USE A VECTORSCOPE)

Equipment: Vectorscope

Subject: All white pattern

Adjustment Method:

1) Set the white balance switch to "AUTO" ( ).
2) Set the vectorscope GAIN knob to "MAX".
3) Rotate RV706 and RV707 on the AW-2 Board and adjust the center of the white spot on the vectorscope to the origin. (See Fig. 1-29.)

Note: Press the white balance switch, check and adjust for when rotating RV706 and RV707.

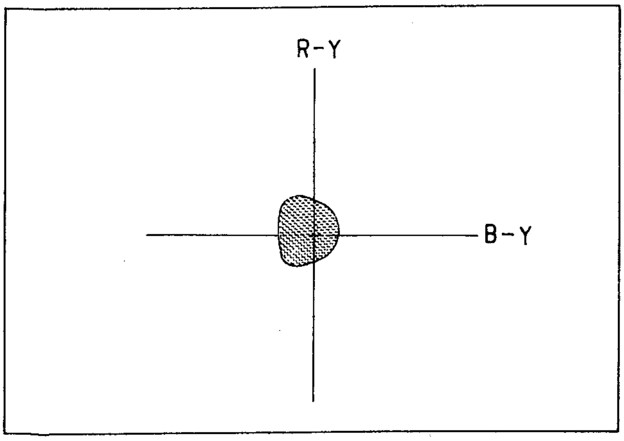


Fig. 1-29

(USE A OSCILLOSCOPE)

Equipment: Oscilloscope
CH1 (X): ME-2 Board Q710 emitter (B-Y)
CH2 (Y): ME-2 Board TP709 (R-Y)
MODE: X-Y

Subject: White pattern

Adjustment Method:

1) Set the white balance switch to "AUTO" ( ).
2) Cover a black cap on the lens, check the black spot position, then remove the black cap.
3) Rotate RV706 (B OFS) and RV707 (R OFS) on AW-2 Board to overlap the white and black spots.

Note: When RV706 and RV707 are rotated, press the white balance switch and adjust while checking the white and black spots.

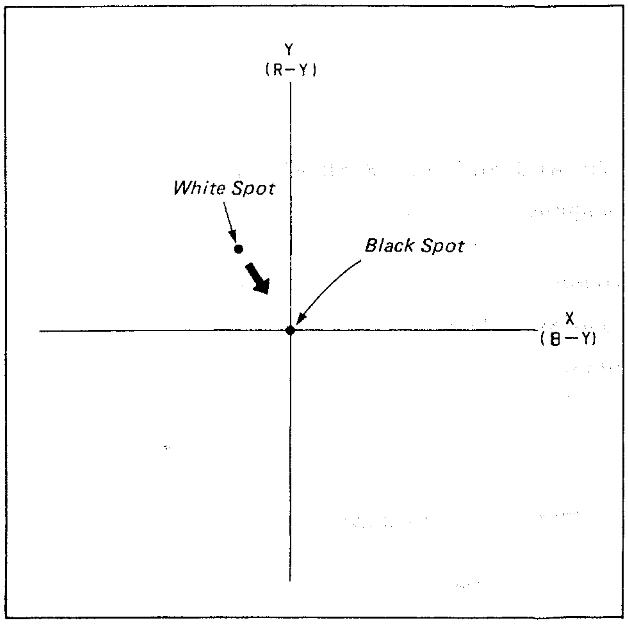


Fig. 1-30

1-24. MAX GAIN ADJUSTMENT

Equipment: Oscilloscope
ME-2 Board TP711

Subject: Colour bar chart (Standard picture frame)

Adjustment Method:

1) Set the white balance switch to "AUTO" (⊠) and press once.
2) Cover an ND filter 1.9 in front of the lens.
3) Adjust the waveform value to 175 ±10mV with RV707 on the CP-11 Board. (See Fig. 1-31.)

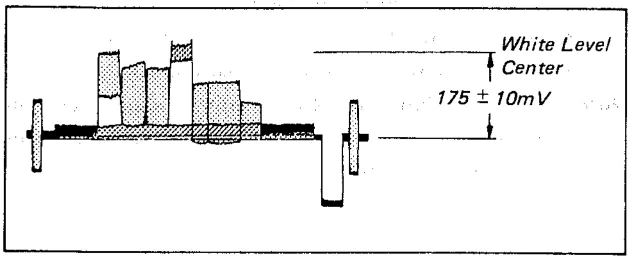


Fig. 1-31

1-25. AGC SET ADJUSTMENT (2)

Equipment: Oscilloscope
AW-2 Board TP701

Subject: Colour bar chart (Standard picture frame)

Adjustment Method:

Adjust the waveform value to 200 ±5mVp-p with RV709 on the AW-2 Board. (See Fig. 1-32.)

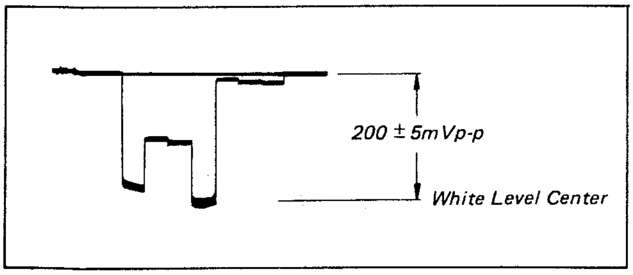


Fig. 1-32

1-26. AGH SET ADJUSTMENT

Equipment: Oscilloscope
ME-2 Board TP711

Subject: All white pattern

Adjustment Method:

1) Set the IRIS selector switch to "BACK LIGHT".
2) Rotate RV711 on the AW-2 Board to adjust the waveform to 350 ±20mV. (See Fig. 1-33.)

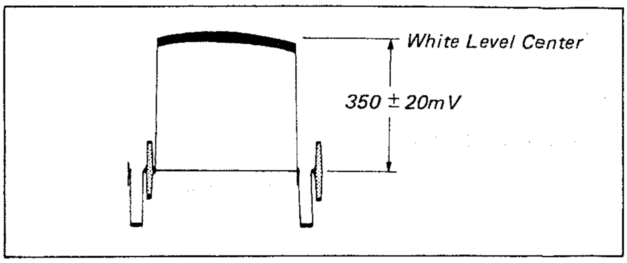


Fig. 1-33

3) Set the IRIS selector switch to "HIGH LIGHT" and check that the waveform is 100 ±30mV.

1-27. LX ADJUSTMENT

Subject: White pattern (Zoom lever position: Standard picture frame)

Adjustment Method:

1) Cover an ND filter 2.0 in front of the lens and wait 2 or 3 seconds.
2) Rotate RV708 on the AW-2 Board, light the LX lamp (EVF), thereafter extinguish it.
3) Exchange with an ND filter 2.1 and check that the LX lamp (EVF) lights in less than 3 seconds.
4) Check that the lamp extinguishes with an ND filter 2.0 and lights with an ND filter 2.1. Repeat adjusting and checking if not satisfactory.

Note: The lens sensitivity changes depending on the zoom position. Do not move the zoom ring when making an adjustment.

1-28. COLOUR REPRODUCIBILITY ADJUSTMENT (USE A VECTORSCOPE)

Equipment: Vectorscope (NTSC mode)

Subject: Colour bar chart (Standard picture frame)

Adjustment Method:

1) Set the white balance switch to "AUTO" (⊠).
2) Rotate RV706, RV707, RV708, and RV709 on the ME-2 Board and place the six colour spots inside their standard frames. (See Fig. 1-34.)

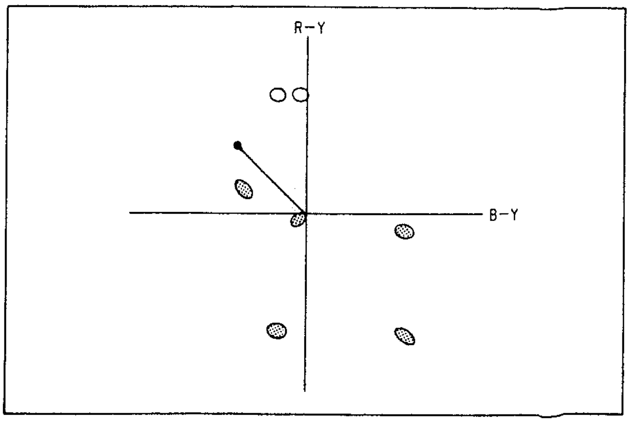


Fig. 1-34

(USE A OSCILLOSCOPE)

1.

Equipment: Oscilloscope
ME-2 Board Q710 emitter (B-Y) and TP709 (R-Y)

Subject: Colour bar chart (Standard picture frame)

Adjustment Method:

1) Set the white blance switch to "AUTO" (☑) and press the switch once.
2) Connect the oscilloscope to the Q710 emitter (B-Y) on the ME-2 Board.
3) Rotate RV708 (RM) on the ME-2 Board to eliminate the step between white and magenta.
4) Connect the oscilloscope to TP709 (R-Y).
5) Rotate RV709 (BM) on the ME-1 Board to eliminate the step between magenta and red.

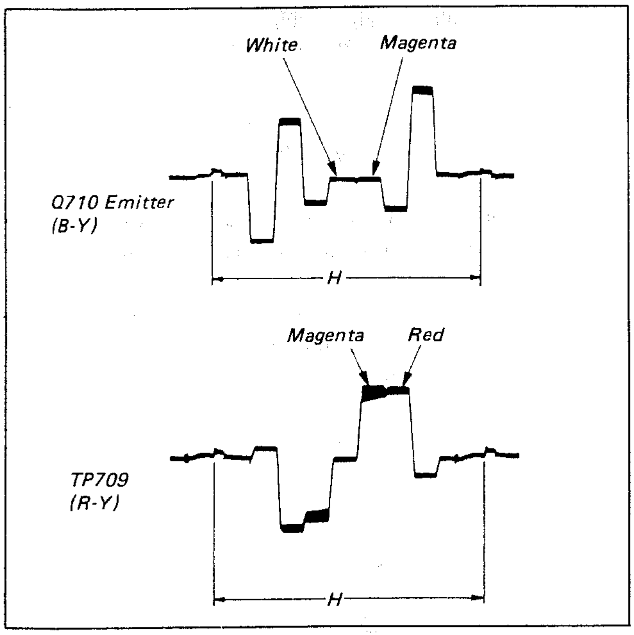


Fig. 1-35

2

Equipment: Oscilloscope
ME-2 Board TP711 (V, O)

Subject: Colour bar chart (Standard picture frame)

Adjustment Method:

1) Set the white balance switch to "AUTO" (☑) and press the swtich once.
2) Rotate RV707 (B-Y) on the ME-2 Board to minimize the blue amplitude.
3) Rotate RV706 (R-Y) on the ME-2 Board to adjust the red amplitude to 244 ±5mVp-p.
4) Rotate RV707 (B-Y) to adjust the yellow amplitude to 168 ±5mVp-p.

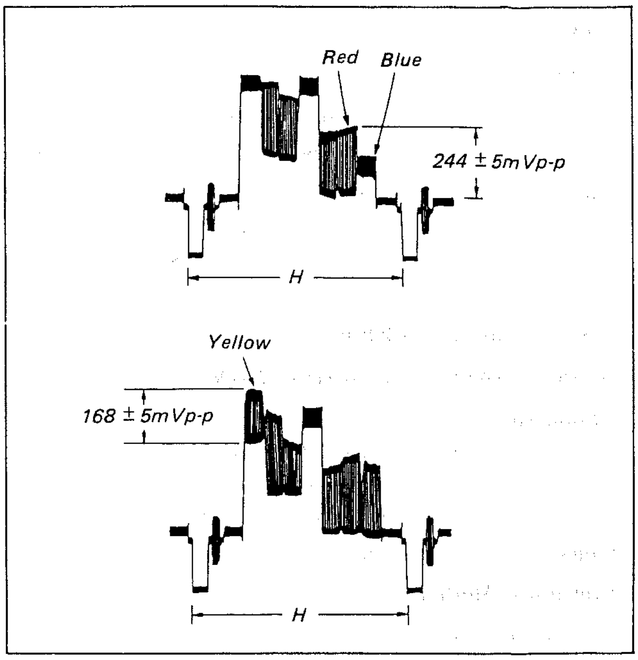


Fig. 1-36

1-29. BURST ADJUSTMENT
(USE A VECTORSCOPE)
1. BURST PHASE

Equipment: Vectorscope (NTSC mode)

Subject: Colour bar chart (Standard pictureframe)

Adjustment Method:

1) Burst signals are made to intermingle with each otther by the vectorscope PHASE adjustment knob.
2) Rotating RV715 on the ME-2 Board, adjust the Burst phase to become 135° ±2°.

Note: Adjustment is performed by rotating RV715 clockwise from the fully counterclockwise tuned position.

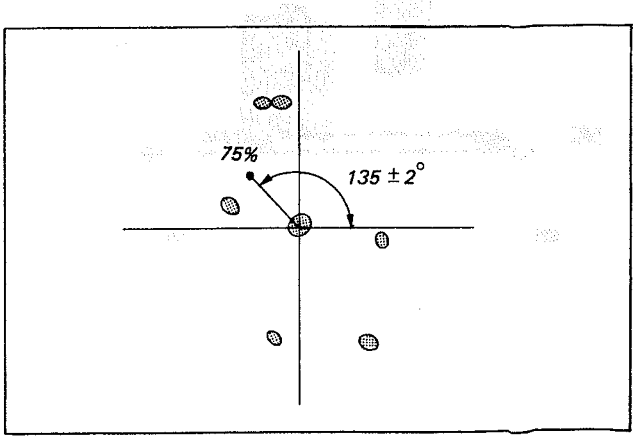


Fig. 1-37

2. BURST GAIN

Equipment used: Vectorscope (NTSC mode)

Subject: Colour bar chart (standard picture frame)

Adjustment method:

Adjust the burst level center to less than ±1mm of burst position on scale 75% using RV714 on the ME-2 Board.

Note: Adjust the value between two different levels of the white spot so that it becomes the burst position on scale 75%, when these two levels are not the same. (See Fig. 1-37.)

(USE A OSCILLOSCOPE)

BURST PHASE AND BURST GAIN

Equipment: Oscilloscope
ME-2 Board TP711 (V, O)
Digital voltmeter
ME-2 Board RV715 (hue) sliding terminal

Subject: Colour bar chart (Standard picture frame)

Adjustment Method:

1) Set the white balance switch to "AUTO" (☑) and press the switch once.
2) Rotate RV715 (hue) to adjust the RV715 sliding terminal voltage to 2.80V dc.
3) Rotate RV714 (GB) on the ME-2 Board to adjust the burst level to 150 ±5mVp-p.
4) Check the colours reproduced on the monitor TV screen.

Note: Magenta is reproduced in a red-tinted colour.

5) If a hue adjustment is necessary, rotate RV715 within the range of the RV715 sliding terminal voltage of 2.80 ±0.02V dc and repeat Steps 3) and 4).

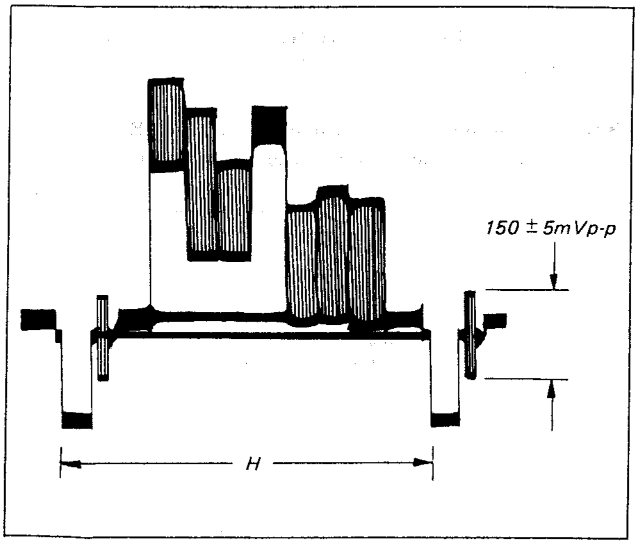


Fig. 1-38

1-30. R AND B GAIN ADJUSTMENTS (USE A VECTORSCOPE)

Equipment used: Vectorscope

Subject: White pattern (Zoom lever position: Standard picture frame)

Adjustment Method:

Note: When performing the adjustments on the steps of 3), 5), 8) and 10), set the GAIN of a vectorscope as high as possible.

1) Set the white balance switch to AUTO (☑).
2) Preset RV705 on the CP-11 Board to the mechanical center. (See Fig. 1-39.)

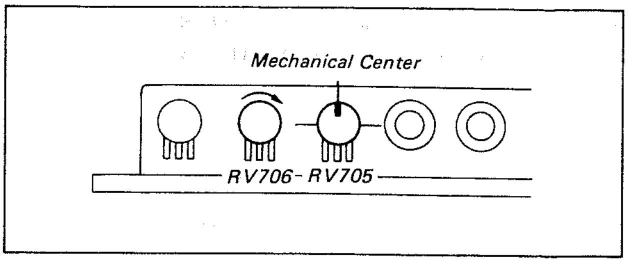


Fig. 1-39

3) Rotate RV706 on the CP-11 Board clockwise and preset so that the white spot on the vector moves to left fully.
4) Place a filter W14 in front of the lens, press the auto white balance swtich, and check that the white spot is slided left from the R-Y axis. (See Fig. 1-40.)

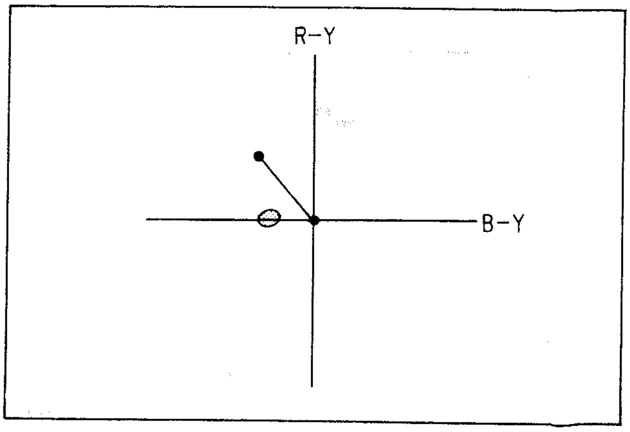


Fig. 1-40

5) Rotate RV706 counterclockwise and move the white spot to the origin.
6) Press the white balance switch.
7) Check that the white spot is less than 3φ from the origin and that the white balance alarm lamp inside EVF is not flashing.
   Rotate RV706 slightly counterclockwise and repeat Steps 6) and 7) if either one of these two conditions is not met.
8) Rotate RV705 clockwise and preset so that the white spot moves to lower right fully.
9) Change the filter to a C22 filter. Check that the white spot is slided under the B-Y axis when the white balance switch is pressed. (See Fig. 1-41.)

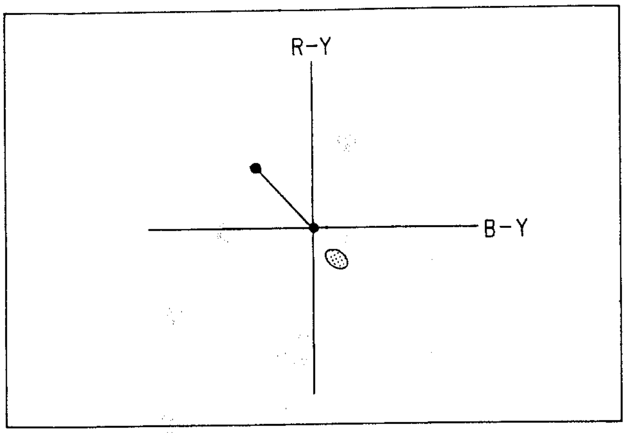


Fig. 1-41

10) Rotate RV705 counterclockwise and move the white spot closer to the origin.
11) Press the white balance switch.
12) Repeat Steps 10) and 11) and adjust so that the white spot is located less than 3φ from the origin and that the white balance alarm lamp inside EVF is extinguished.
13) Rotate RV705 counterclockwise further to place the white spot 4.0 ±0.5mm upper left of the origin. Then push the white balance switch and check that the white spot is located less than 3φ from the origin and that white balance alarm lamp inside EVF is not flashing either. (See Fig. 1-42.)

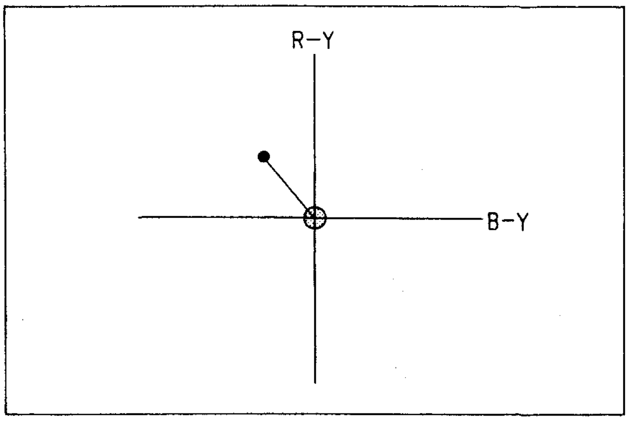


Fig. 1-42

(USE A OSCILLOSCOPE)

Equipment: Oscilloscope
CH1 (X): ME-2 Board Q710 emitter (B-Y)
CH2 (Y): ME-2 Board TP709 (R-Y)
MODE: X-Y
Filter: W14, C22

Subject: White pattern

Adjustment Method:

1) Set the white balance switch to "AUTO" (☑).
2) Preset RV705 (RG) on the CP-11 Board to the mechanical center.

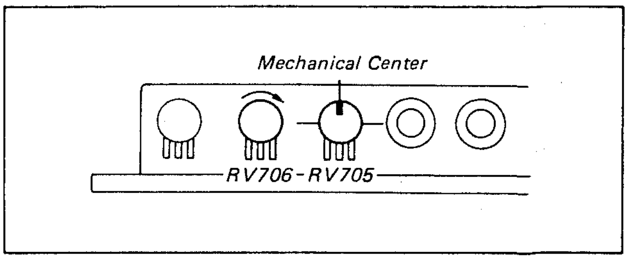


Fig. 1-43

3) Cover a black cap on the lens, check the black spot position, then remove the black cap.

4) Rotate RV706 (BG) on the CP-11 Board clockwise and preset so that the white spot slides to the left side full relative to the black spot.

5) Cover a filter W14 on the lens, press the white balance switch, then check that the white spot is slided left of the black spot.
(See Fig. 1-44 Ⓐ .)

6) Rotate RV706 counterclockwise and align the centers of the white and black spots.
(See Fig. 1-44 Ⓑ .)

7) Press the white balance switch.

8) Check that the voltage difference between the centers of the white and black spots is less than 7mV and that the white balance alarm lamp in EVF is not flashing.
(See Fig. 1-44 Ⓒ .)

9) Rotate RV706 counterclockwise slightly if either one of these two conditions is not met and repeat Steps 7) and 8).

10) Rotate RV705 (RG) clockwise and preset so that the white spot approaches immediately below the right-hand side of the black spot.

11) Change the filter to C22, press the white balance switch, then check that the white spot is slided below (lower right) of the black spot.
(See Fig. 1-44 Ⓔ .)

12) Rotate RV705 counterclockwise and overlap the centers of the white and black spots.
(See Fig. 1-44 Ⓕ .)

13) Press the white balance switch.

14) Repeat Steps 12) and 13) to adjust so that the voltage difference between the centers of the white and black spots is less than 5mV and that the white balance alarm lamp inside EVF is not flashing.
(See Fig. 1-44 Ⓖ .)

15) Rotate RV705 counterclockwise additionally and place the white spot center 13 ±2mV above the black spot center.
(See Fig. 1-44 Ⓗ .)

16) Press the white balance switch and check that the white spot center is overlapping the black spot center and that the white balance alarm lamp inside EVF is not flashing.
(See Fig. 1-44 Ⓘ .)

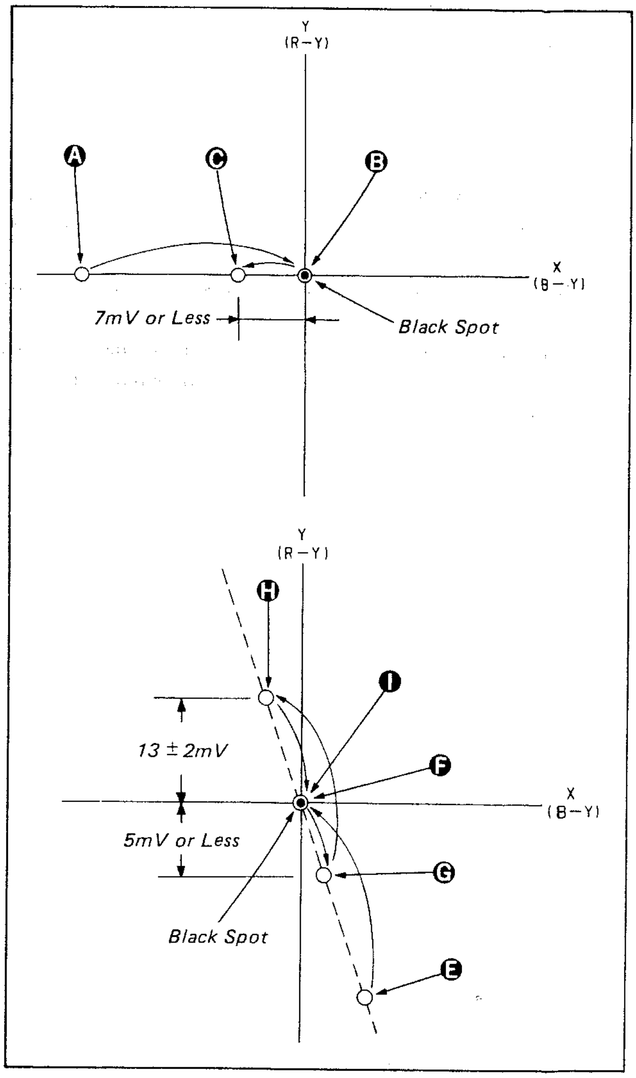


Fig. 1-44

1-31. MR$_1$ AND MB$_1$ ADJUSTMENT (USE A VECTORSCOPE)

Equipment: Vectorscope

Subject: Colour bar chart (Standard picture frame)

Adjustment Method:

1) Set the white balance switch to (☼).
2) Set the vectorscope GAIN knob to "MAX".
3) Rotate RV701 and RV703 on the AW-2 Board and adjust the white spot on the vectorscope to be placed on the origin. (See Fig. 1-45.)
4) Set the vectorscope GAIN knob to "CAL".
   At that time check that the white spot is within ϕ1mm distance from the center of the origin.

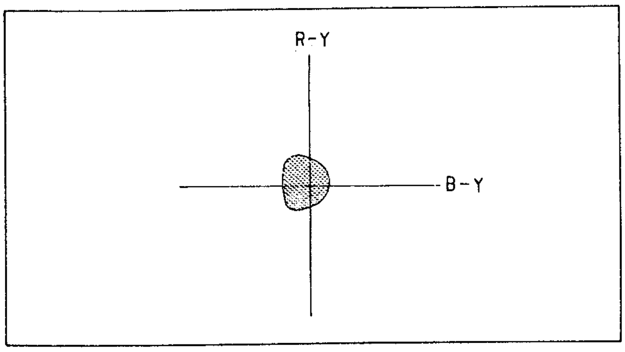


Fig. 1-45

(USE A OSCILLOSCOPE)

Equipment: Oscilloscope
CH1 (X): ME-2 Board Q710 emitter (B-Y)
CH2 (Y): ME-2 Board TP709 (R-Y)
MODE: X-Y

Subject: Colour bar chart (Standard picture frame)

Adjustment Method:

1) Set the white balance switch to the M$_1$ (☼) position.
2) Cover a black cap on the lens, check the black spot position, then remove the black cap.
3) Rotate RV701 (MR$_1$) and RV703 (MB$_1$) on the AW-2 Board to overlap the centers of the white and black spots.

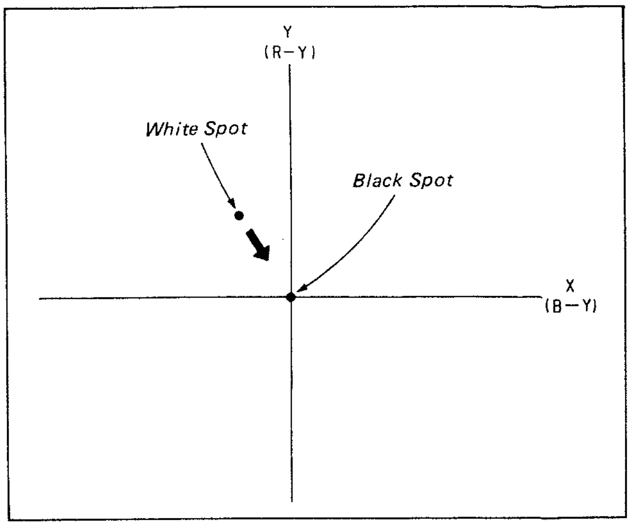


Fig. 1-46

1-32. MR$_2$ AND MB$_2$ ADJUSTMENT (USE A VECTORSCOPE)

Equipment: Vectorscope

Subject: Colour bar chart (standard picture frame)

Adjustment Method:

1) Set the white balance switch to (☼).
2) Cover a filter for fine weather in front of the lens.
3) Set the vectorscope GAIN knob to "MAX".
4) Rotate RV702 and RV704 on the AW-2 Board to align the white spot on the vectorscope to a position approximately 2mm below the origin on the R-Y axis. (See Fig. 1-47.)

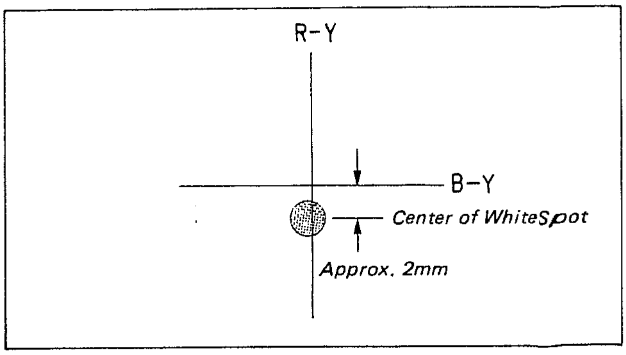


Fig. 1-47

(USE A OSCILLOSCOPE)

Equipment: Oscilloscope
CH1 (X): ME-2 Board Q710 emitter (B-Y)
CH2 (Y): ME-2 Board TP709 (R-Y)
MODE: X-Y
Filter: For fine weather (5800°K)

Subject: Colour bar chart (Standard picture frame)

Adjustment Method:

1) Set the white balance switch to the M$_2$ (☼) position.
2) Mount a filter for fine weather on the lens.
3) Cover a black cap on the lens, check the black spot position, then remove the black cap.
4) Rotate RV702 (MR$_2$) and RV704 (MB$_2$) on the AW-2 Board to position the white spot center directly below the black spot center (6.5mV).

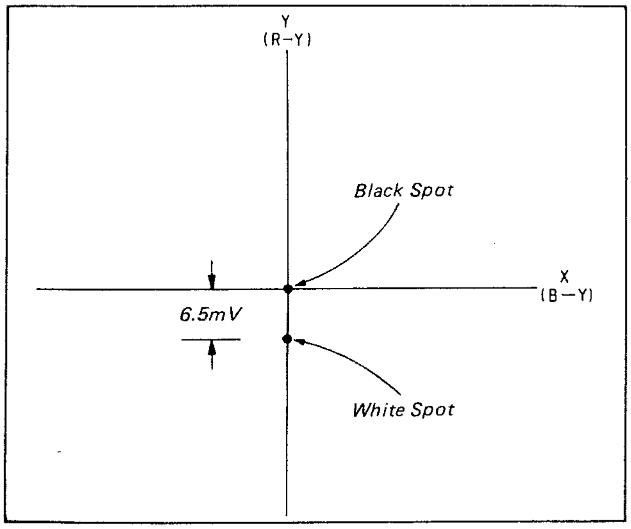

Y
(R−Y)
Black Spot
X
(B−Y)
6.5mV
White Spot

Fig. 1-48

1-33. VIDEO OUT SIGNAL CONFIRMATION

Equipment: Oscilloscope
ME-2 Board TP711

Subject: Colour bar chart (Standard picture frame)

Checking Method:

1) After making all the required adjustments, check that the signal level is ≦ 580mVp-p. (See Fig. 1-48.)
2) Check and adjust the MAX gain and colour reproducibility when the signal level is higher than 580mV p-p.

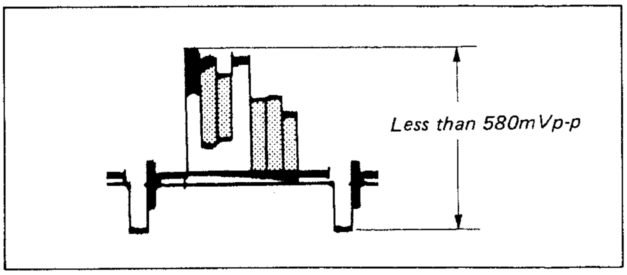

Less than 580mVp-p

Fig. 1-49

1-34. ADJUSTMENT OF AUTOMATIC FOCUS SYSTEM

1-34-1. Measurement Distance Check

Connection Diagram

1) Set up the cross chart and the 8mm video camera as shown in the diagram below.
2) Align the heights and horizontal levels of the cross chart and 8mm video camera.

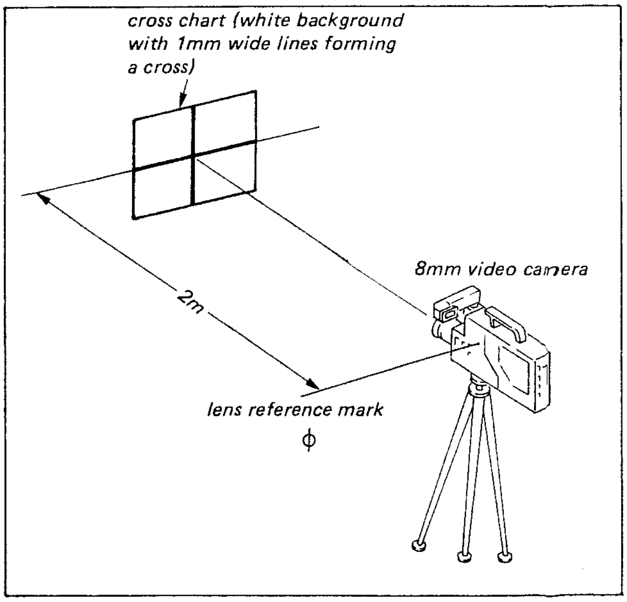

cross chart (white background with 1mm wide lines forming a cross)
2m
8mm video camera
lens reference mark
ϕ

Fig. 1-50

Checking Procedure:

1) Set the focus switch to "AUTO" (▣).
2) Set the lens zoom ring on the telephoto side.
   Rotate the focus ring to ∞ by hand.
3) Check that the difference between the 2m mark on the focus ring and the mark is ±1mm when the focus ring is released.
4) Set to 1.3(m) by rotating focus ring manually.
5) Confirm Item 3.

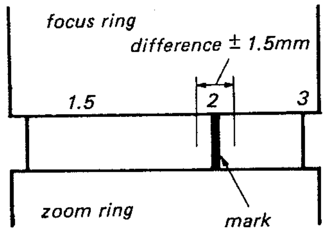

focus ring
difference ± 1.5mm
1.5
2
3
zoom ring
mark

Fig. 1-51

1-34-2. Zoom Lens Block

1. Zoom Motor Unit and Focus Motor Unit

1) When mounting the zoom motor unit and focus motor adjust the engagement of the gears so that the play of the manual zoom and focus ring is 0.5mm – 1mm on the zoom ring and focus ring respectively, and fix with screws. (Fig. 1-52)

Note: If there is not enough play, manual torque will be heavy at high and low temperatures.

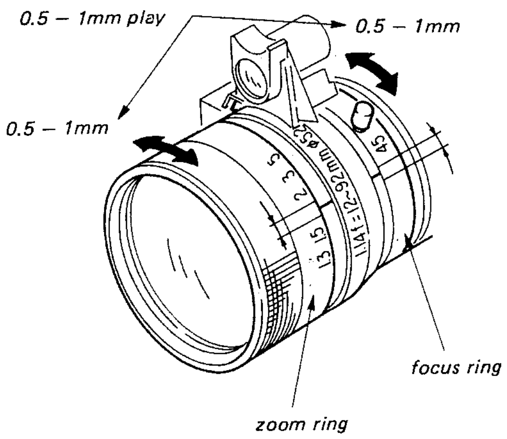

0.5 – 1mm play
0.5 – 1mm
0.5 – 1mm
focus ring
zoom ring

Fig. 1-52

2. Iris Unit

1) Check iris operation. (Fig. 1-53)
2) Adjust flange back.

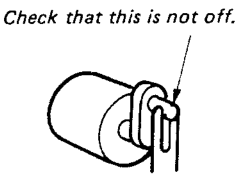

Check that this is not off.

Fig. 1-53

3. Zoom Ring Unit

[Replacement]

1) Open the AZ-2 board.
2) Remove the zoom motor unit from the lens barrel.
3) Remove the screw holding the rear lens barrel and the rear lens barrel. (Fig. 1-54)
4) Remove the screw holding the middle lens barrel and the middle lens barrel. (Fig. 1-55)
5) Remove the zoom ring unit.
6) Replace the zoom ring unit.

[Mounting Procedure]

1) Mount the zoom ring unit. (Fig. 1-56)
2) Mount the middle lens barrel on the rear lens barrel.
3) Mount the zoom motor unit and lens barrel.
4) Check manual zoom operation.
5) Be careful not to get dirt or fingerprints on the lens.
6) Be careful not to scratch the ND filter on the iris unit.
7) Adjust flange back.

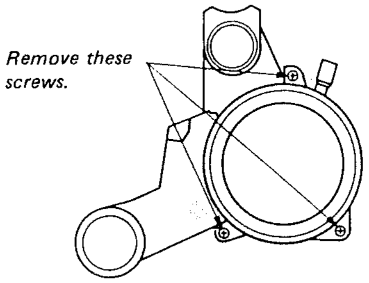

Remove these screws.

Fig. 1-54

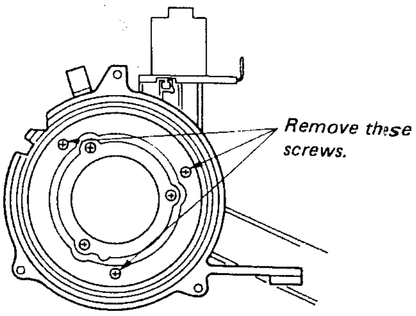

Remove these screws.

Fig. 1-55

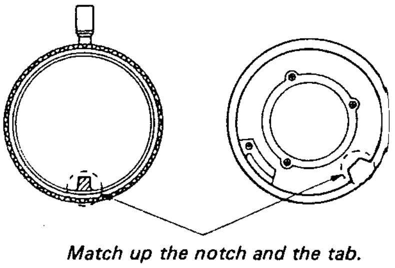

Match up the notch and the tab.

Fig. 1-56

1-34-3. AF Adjustment

1. +5.5V Adjustment (AZ-2 Board)

Required equipment: Digital voltmeter

[Adjustment Method]

Adjust to 5.5 ±0.1V dc with RV11.

2. VFC Adjustment

Required equipment: Frequency counter

Adjustment Method:

1) Short the D001 cathode and 1.7V line to make the waveform stationary.
2) Measure the frequency of Pin ③ of IC010 and adjust with RV010 if not within the specification. (GND: Pin ④ of CN1).

Specification: 29.5 – 30.3kHz (cycle 33^{+1}_{-0} μsec)

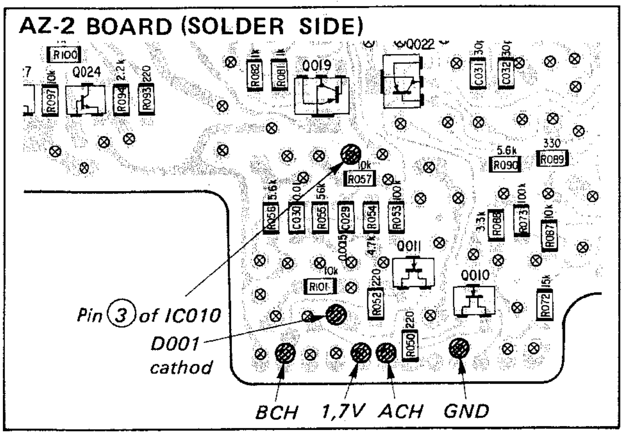

AZ-2 BOARD (SOLDER SIDE)
Q024
Q019
Q022
Q011
Q010
Pin ③ of IC010
D001 cathod
BCH
1,7V
ACH
GND

Fig. 1-57

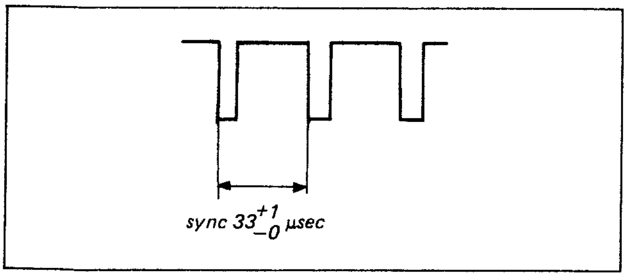

sync 33^{+1}_{-0} μsec

Fig. 1-58

3. Offset Adjustment (AZ-2, PA-7 Boards)

Required equipment:

Oscilloscope: CH1 Ach (⑤) . . . AZ-2 board
CH2 Bch (⑦) . . . AZ-2 board
(Fig. 1-57)

Adjustment Method:

1) Cover so that infrared rays do not enter the light-receiving sensor. (A 25ϕ piece will work.) (Fig. 1-59)
2) Adjust PA-7 board RV1 (Ach) and RV2 (Bch) so that the Ach and Bch integrated waveforms are 0 (0 potential difference). (Fig. 1-60)

Specifications: within $^{+0.02V}_{-0.05V}$

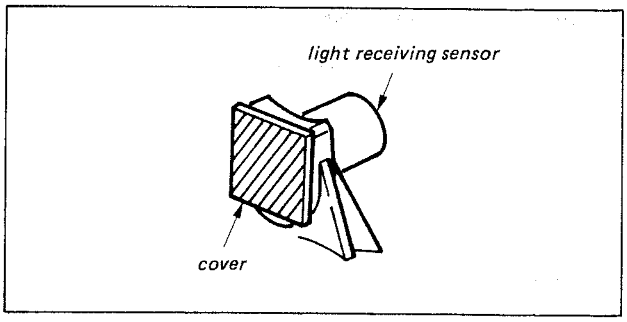

light receiving sensor
cover

Fig. 1-59

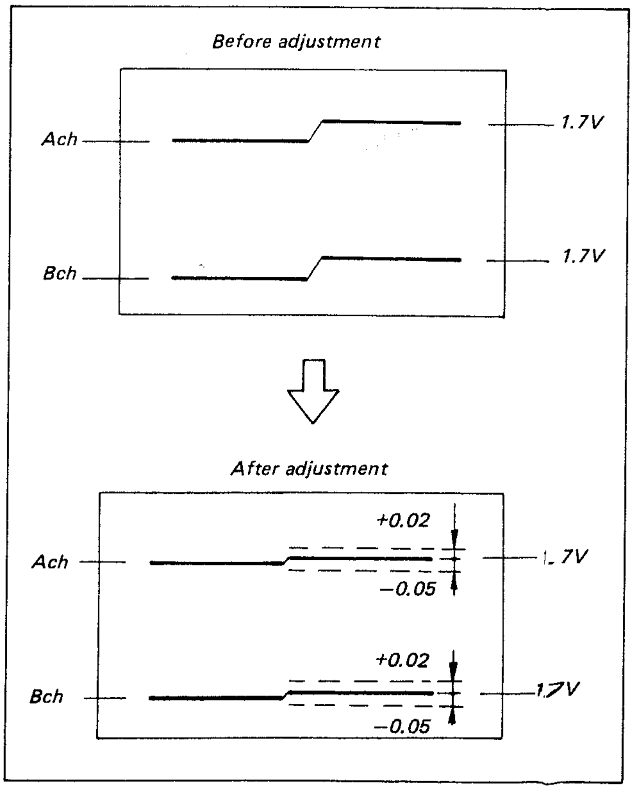

Before adjustment
Ach
1.7V
Bch
1.7V
After adjustment
+0.02
Ach
1.7V
–0.05
+0.02
Bch
1.7V
–0.05

Fig. 1-60

2. MECHANISM SECTION ADJUSTMENT (VIDEO SECTION)

2-1. PREPARATION ITEMS FOR MECHANISM SECTION CHECKING, ADJUSTMENT AND REPLACEMENT

See 2. **DISASSEMBLY** to remove cabinets and boards.

2-1-1. Cassette Compartment Assembly

1. Removal

1) Remove the screw ❶ and open the HS-5 Board ❷ .
   (You will hear a tearing sound, but this causes no problem.)
2) Remove the screw ❸ and open the SV-14 Board ❹ .
3) Remove the screw ❺ and leaf switch (S901) ❻ .
4) Remove four screws ❼ and cassette compartment assembly ❽ . (See Fig. 2-1.)

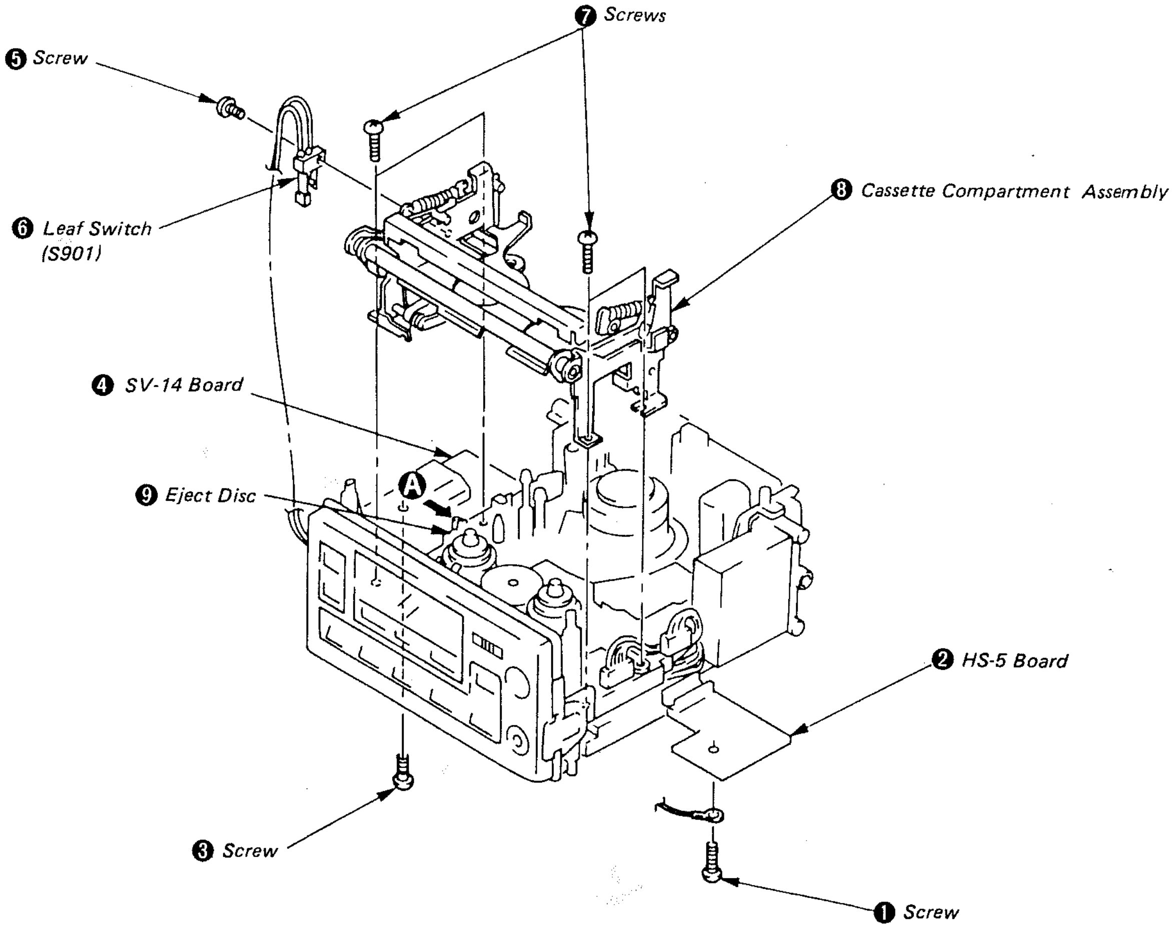

❼ Screws
❺ Screw
❽ Cassette Compartment Assembly
❻ Leaf Switch (S901)
❹ SV-14 Board
❾ Eject Disc
Ⓐ
❷ HS-5 Board
❸ Screw
❶ Screw

Fig. 2-1

2. Remounting

1) Remount the cassette compartment assembly ❽ and tighten the screw ❼ referring to Fig. 2-2. (Push the eject disc ❾ toward the arrow Ⓐ to avoid the disc hitting the cassette compartment assembly.) (See Fig. 2-2.)
2) Remount the leaf switch (S901) ❻ with a screw ❺. (See Fig. 2-1.)
3) Remount the SV-14 Board ❹ with a screw ❸. (See Fig. 2-1.)
4) Remount the HS-5 Board ❷ with a screw ❶. (See Fig. 2-1.)

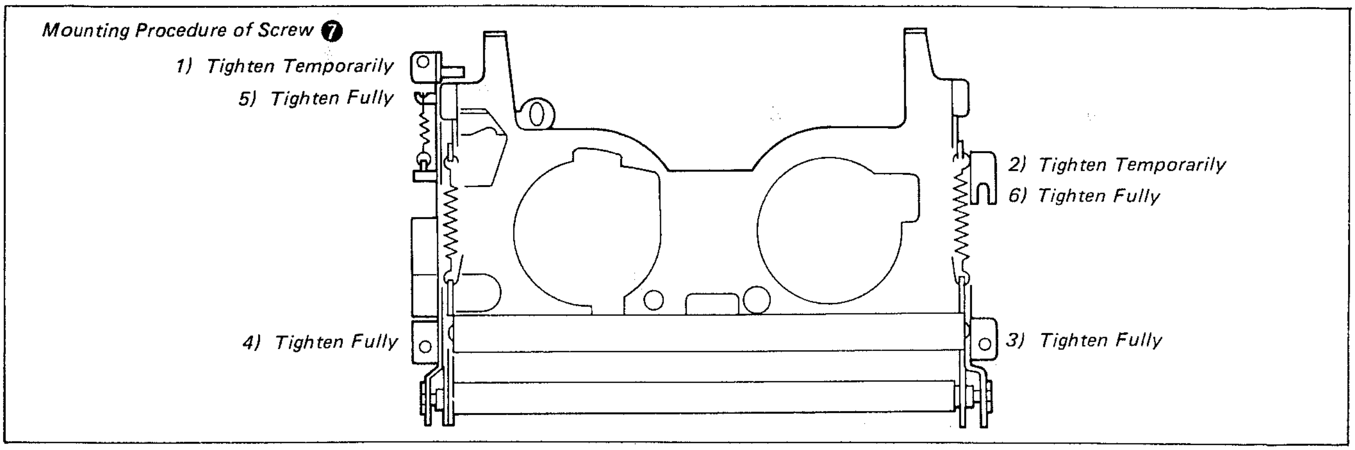

Mounting Procedure of Screw ❼
1) Tighten Temporarily
5) Tighten Fully
2) Tighten Temporarily
6) Tighten Fully
4) Tighten Fully
3) Tighten Fully

Fig. 2-2

2-1-2. Operating without Cassette Compartment Assembly and Tape

Note: Be care that the set may not operate if there is a strong light source near the set. Turn off power, then turn on when the eject lamp flashes.

1. Loading

1) Connect the power supply ❶ and turn on power.
2) Place a tape on the pin of the RECOG SW assembly ❷.
3) Turn on the leaf switch (S901) ❸. (See Fig. 2-3.)

2. Play back

1) Take the steps required in 1.
2) Place a rubber band ❹ between the S and T reels.
3) Cover a cap ❺ on the LED assembly.
4) Press the PLAYBACK button. Push the tension regulator arm assembly ❻ toward the arrow Ⓐ when the T reel starts rotating. (The tension regulator band is released, and the S reel rotates.)
5) Press the STOP button to stop. (See Fig. 2-3.)

3. Recording

1) Take the steps required in 1.
2) Place a rubber band ❹ between the S and T reels.
3) Cover a cap ❺ on the LED assembly.
4) Press the RECORD button. Push the tension regulator arm assembly ❻ toward the arrow Ⓐ when the T reel starts rotating. (The tension regulator band is released, and the S reel rotates.)
5) Press the STOP button to stop. (See Fig. 2-3.)

4. Ejecting

1) Press the EJECT button.

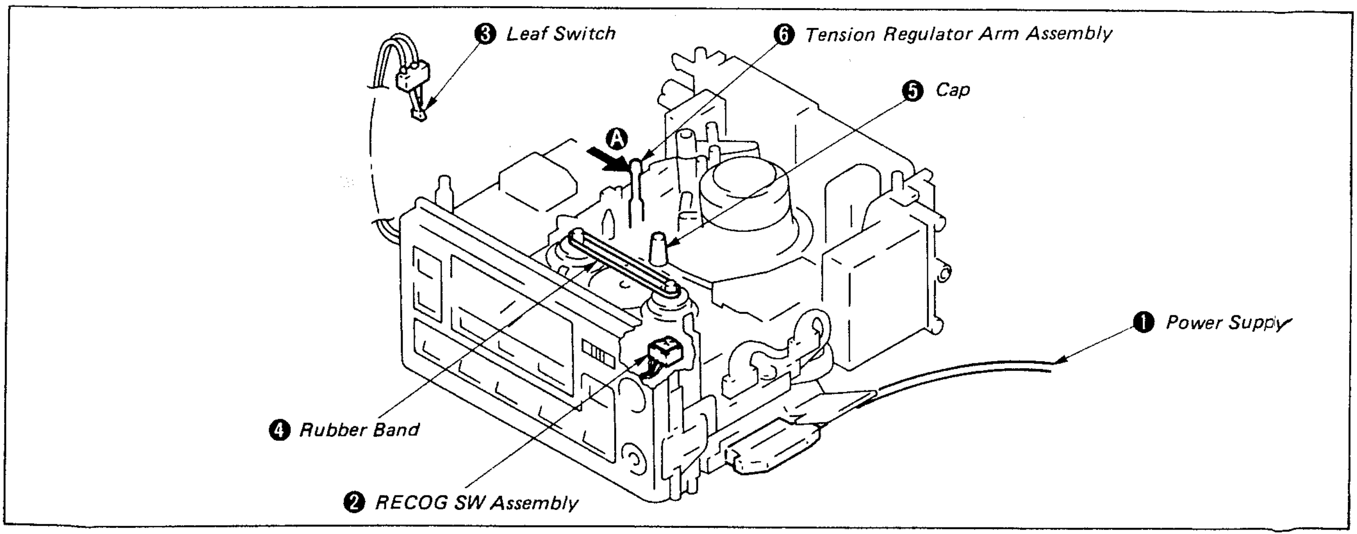

❸ Leaf Switch
❻ Tension Regulator Arm Assembly
❺ Cap
Ⓐ
❶ Power Suppy
❹ Rubber Band
❷ RECOG SW Assembly

Fig. 2-3

2-1-3. Mode Selector Operation

1. Selector Parts (External View)

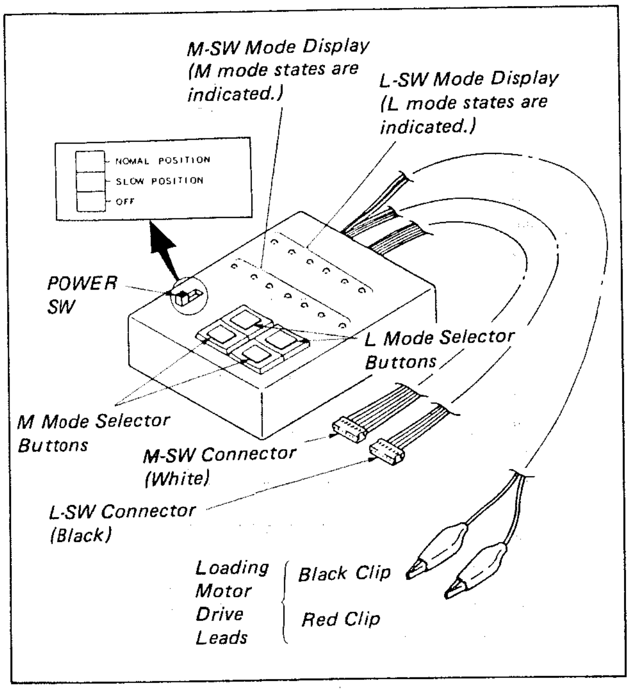

M-SW Mode Display
(M mode states are indicated.)
L-SW Mode Display
(L mode states are indicated.)
NOMAL POSITION
SLOW POSITION
OFF
POWER SW
L Mode Selector Buttons
M Mode Selector Buttons
M-SW Connector (White)
L-SW Connector (Black)
Loading Motor Drive Leads
Black Clip
Red Clip

Fig. 2-4

2. Connection

1) Plug the M-SW connector (6P connector, 6 harnesses, white) to the MS-4 Board (CN905) of the set.
2) Plug the L-SW connector (6P connector, 4 harnesses, black) to the LS-9 Board (CN904) of the set.
3) Connect each of red and black clip of the loading motor to each of red and gray loading motor drive lead wire, respectively. (See Fig. 2-4.)

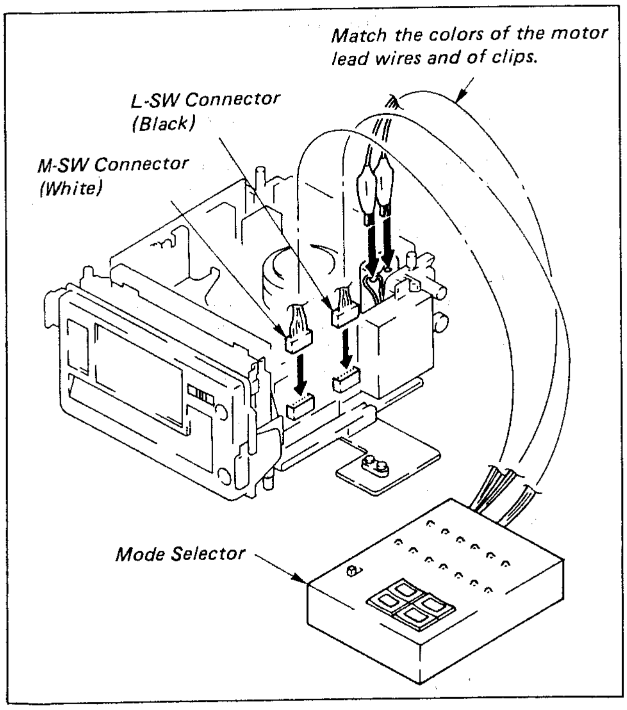

Match the colors of the motor lead wires and of clips.
L-SW Connector (Black)
M-SW Connector (White)
Mode Selector

Fig. 2-5

3. Precautions

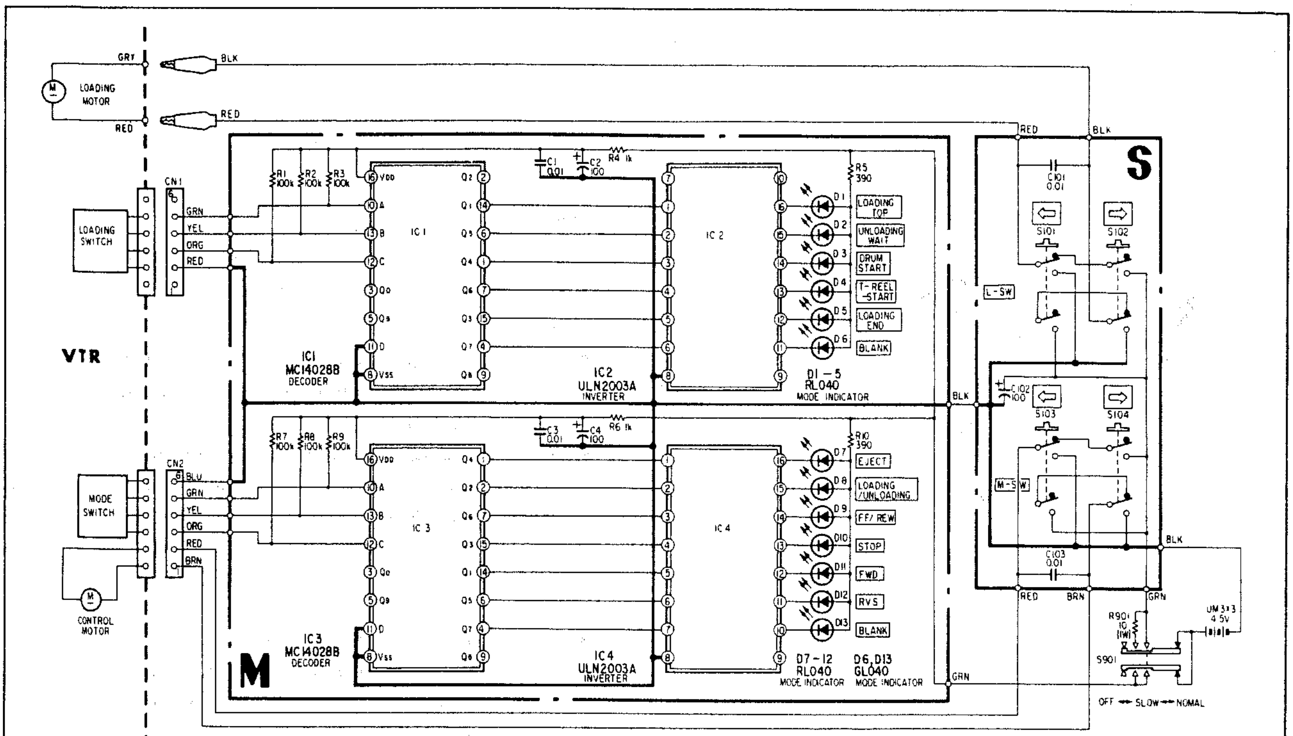
1) Make sure to set the M-SW mode to LOADING/UNLOADING when operating L-SW.
2) Make sure to set the L-SW mode to TOP or END when operating M-SW.

4. Operation

"BLANK" lights if each mode state is not set up during selection regardless of the L or M mode.

1) L Mode
   - Lighted to right sequentially from LOADING TOP to LOADING END when the righthand side button of the L mode selector buttons is kept pressing.
   - Keep pressing the selector button on the lefthand side to set up the desired mode in order to change from LOADING END to LOADING TOP.
   - The L mode operates more slowly in the slow position than in the normal position.
2) M Mode
   - Set L-SW to LOADING TOP to eject.
   - Set L-SW to LOADING END to change from FF/REW to RVS or from RVS to FF/REW.
   - Keep pressing the righthand side selector button of the M MODE to light to right sequentially from EJECT to RVS.
   - Keep pressing the selector button on the lefthand side to set up the desired mode in order to change from RVS to EJECT.

5. Mode Selector Schematic Diagram


LOADING MOTOR
GRY
RED
BLK
LOADING SWITCH
CN1
GRN
YEL
ORG
VTR
MODE SWITCH
CN2
BLU
BRN
CONTROL MOTOR
R1 100k
R2 100k
R3 100k
C1 0.01
C2 100
R4 1k
IC1 MC14028B DECODER
IC2 ULN2003A INVERTER
R5 390
LOADING TOP
UNLOADING WAIT
DRUM START
T-REEL START
LOADING END
BLANK
D1 – 5 RL040 MODE INDICATOR
R7 100k
R8 100k
R9 100k
C3 0.01
C4 100
R6 1k
IC3 MC14028B DECODER
IC4 ULN2003A INVERTER
R10 390
EJECT
LOADING /UNLOADING
FF/REW
STOP
FWD
RVS
D7 – 12 RL040 MODE INDICATOR
D6, D13 GL040 MODE INDICATOR
M
S
C101 0.01
S101
S102
L-SW
C102 100
S103
S104
M-SW
C103 0.01
R901 10 (1W)
S901
UM3×3 4.5V
OFF ⇠ SLOW ⇠ NOMAL

M-SW (IC 3)

DECODER INPUT			MODE	LED NO.
C	B	A		
0	0	0		
0	0	1	FWD	D11
0	1	0	LOADING/UNLOADING	D8
0	1	1	STOP	D10
1	0	0	EJECT	D7
1	0	1	RVS	D12
1	1	0	FF/REW	D9
1	1	1	BLANK	D13

0 : INPUT LEVEL L
1 : INPUT LEVEL H

L-SW (IC 1)

DECODER INPUT			MODE	LED NO.
C	B	A		
0	0	0		
0	0	1	LOADING TOP	D1
0	1	0		
0	1	1	LOADING END	D5
1	0	0	DRUM START	D3
1	0	1	UNLOADING WAIT	D2
1	1	0	T-REEL-START	D4
1	1	1	BLANK	D6

SWITCH		DIRECTION OF MOTOR REVOLUTION
⇦	⇨	
OFF	OFF	STOP
ON	OFF	⇦
OFF	ON	⇨

⇦ L-SW LOADING END ← LOADING TOP
M-SW RVS ← EJECT

⇨ L-SW LOADING TOP ← LOADING END
M-SW EJECT ← RVS

6. Mode Selector Parts List

Ref. No.	Part No.	Description		
		CAPACITOR		
C1	1-108-579-00	MYLAR	0.01μF	50V
C2	1-123-333-00	ELECT	100μF	24V
C3	1-108-579-00	MYLAR	0.01μF	50V
C4	1-123-333-00	ELECT	100μF	24V
C101	1-108-579-00	MYLAR	0.01μF	50V
C102	1-123-333-00	ELECT	100μF	24V
C103	1-108-597-00	MYLAR	0.01μF	50V
		DIODE		
D1	8-719-812-31	DIODE	TLR123	
D2	8-719-812-31	DIODE	TLR123	
D3	8-719-812-31	DIODE	TLR123	
D4	8-719-812-31	DIODE	TLR123	
D5	8-719-812-31	DIODE	TLR123	
D6	8-719-812-33	DIODE	TLG123A	
D7	8-719-812-31	DIODE	TLR123	
D8	8-719-812-31	DIODE	TLR123	
D9	8-719-812-31	DIODE	TLR123	
D10	8-719-812-31	DIODE	TLR123	
D11	8-719-812-31	DIODE	TLR123	
D12	8-719-812-31	DIODE	TLR123	
D13	8-719-812-33	DIODE	TLG123A	

Ref. No.	Part No.	Description		
		IC		
IC1	8-759-240-28	IC	TC4028BP	
IC2	8-759-120-03	IC	μPA2003A	
IC3	8-759-240-28	IC	TC4028BP	
IC4	8-759-120-03	IC	μPA2003A	
		RESISTOR		
R1	1-247-179-00	CARBON	100K	¼W
R2	1-247-179-00	CARBON	100K	¼W
R3	1-247-179-00	CARBON	100K	¼W
R4	1-247-131-00	CARBON	1K	¼W
R5	1-247-121-00	CARBON	390	¼W
R6	1-247-131-00	CARBON	1K	¼W
R7	1-247-179-00	CARBON	100K	¼W
R8	1-247-179-00	CARBON	100K	¼W
R9	1-247-179-00	CARBON	100K	¼W
R10	1-247-121-00	CARBON	390	¼W
R901	1-214-594-00	METAL	10	1W

2-2. PERIODIC CHECKING AND MAINTENANCE ITEMS

Maintenance and periodic checking should be performed as described below to demonstrate the set functions and performance fully, as well as for the sake of the machine and tapes. Provide the following maintenance work after a repair regardless of the duration of operation by the user.

2-2-1. Cleaning Rotary Drum Assembly

1) Lightly place chamois leather (Ref. No. J-2) moisted with a cleaning solution (Ref. No. J-1) on the rotary upper drum assembly and slowly rotate the rotary upper drum assembly counterclockwise by a finger to clean.

Note: Do not rotate the drum by the motor by turning on power or by rotating clockwise by a finger.
The chances of the head chip being damaged are very high if chamois leather is moved perpendicular to the head chip. Absolutely no cleaning method other than that described above should be used.

2-2-2. Tape Guide System Cleaning

1) Set up the cassette compartment assembly in an eject state and clean the tape guide system (No. 1 to 11 guides, capstan spindle and pinch roller) with chamois leather moisted with a cleaning solution. (See Fig. 2-6.)

2-2-3. Drive System Cleaning

1) Clean the drive system (timing belt and reel table surfaces) with a cloth moisted with a cleaning solution.

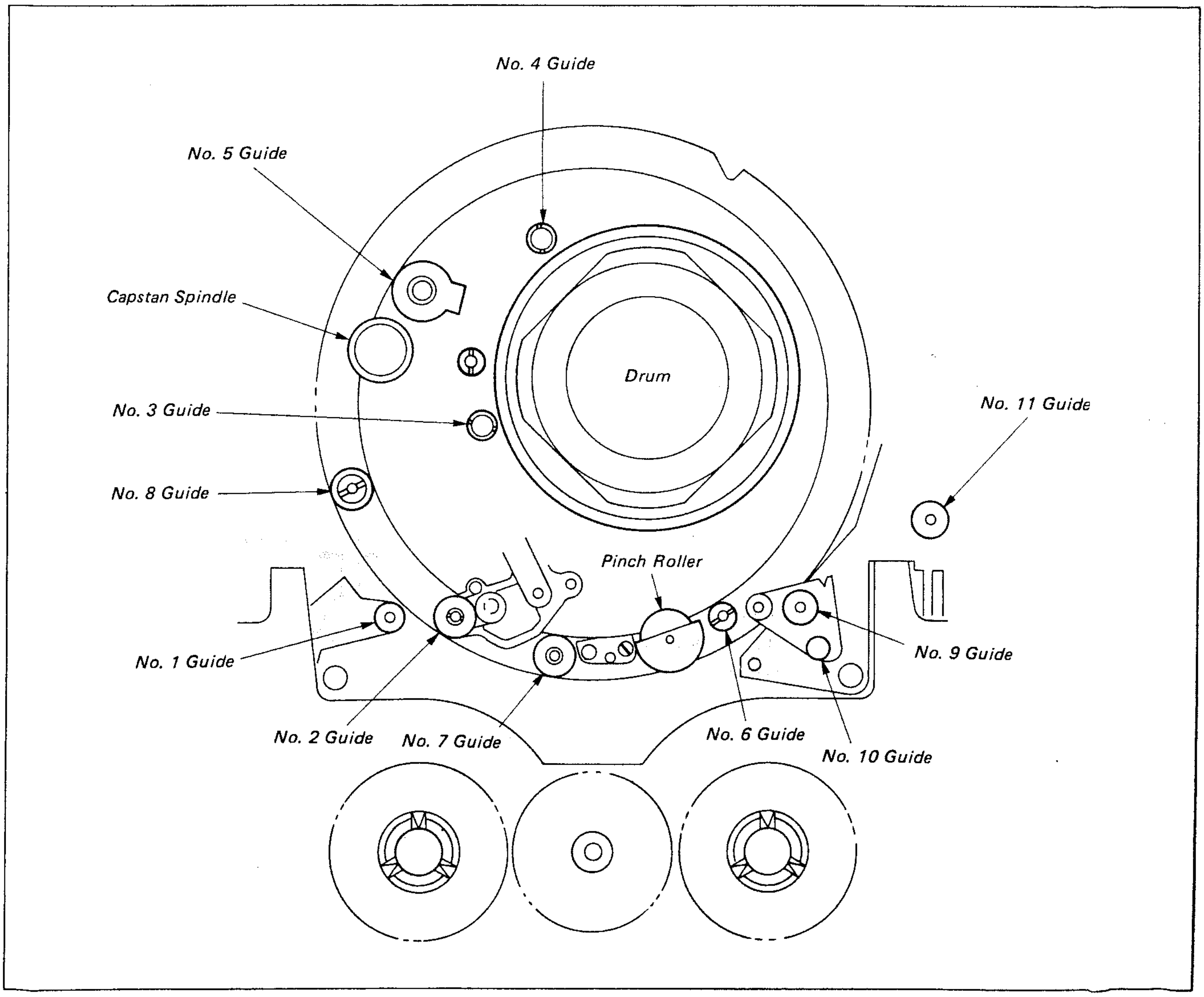

No. 4 Guide
No. 5 Guide
Capstan Spindle
Drum
No. 3 Guide
No. 11 Guide
No. 8 Guide
Pinch Roller
No. 1 Guide
No. 9 Guide
No. 2 Guide
No. 7 Guide
No. 6 Guide
No. 10 Guide

Fig. 2-6

2-2-4. Periodic Check Items

Provide the following maintenance and checking depending on the user use duration.

○Cleaning ◎Oiling ★Replacement ☆Checking

Maintenance and Check Part		Hours in Operation (h)										Remarks
		500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	
Tape Guide System	Cleaning of tape running surfaces	○	○	○	○	○	○	○	○	○	○	Avoid oil
	Cleaning and demagnetizing of rotary drum assembly	○	○	○	○	○	○	○	○	○	○	Avoid oil
Drive System	L motor belt	○	○	○	○	○	○	○	★	○	○	3-686-546-01 Replace here, or every two years
	Timing belt	○	○	○	○	○	○	○	○	○	○	3-686-646-01
	Plunger solenoid	—	—	—	○	—	—	—	○	—	—	1-454-377-11
	Capstan bearing	—	◎	—	◎	—	◎	—	◎	—	◎	Absolutely avoid oil on tape running surfaces.
	Loading motor	—	☆	—	☆	—	☆	—	☆	—	☆	A-7040-009-A
	Control motor	—	☆	—	☆	—	☆	—	☆	—	☆	8-835-110-01
Performance Checking	Abnormal sound	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Back tension measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake system	—	☆	—	☆	—	☆	—	☆	—	☆	
	FWD/RVS Torque measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

Note: Replace parts in overhaul taking the foregoing items into consideration.

Note: SONY Oil

- Be sure to use SONY oil, always. (Various kinds of trouble may occur if the oil viscosity, etc. change.)
  SONY Oil. Parts No. 7-661-088-61
- Be sure to use SONY oil completely free from dust, etc. mixed in it when oiling the bearings. (The bearings may wear and may be seized if oil mixed with dust, etc. is used.)
- One drop of oil is approximately the amount of oil on tip of a stick 2mm in diameter as shown in the diagram. (See Fig. 2-7.)

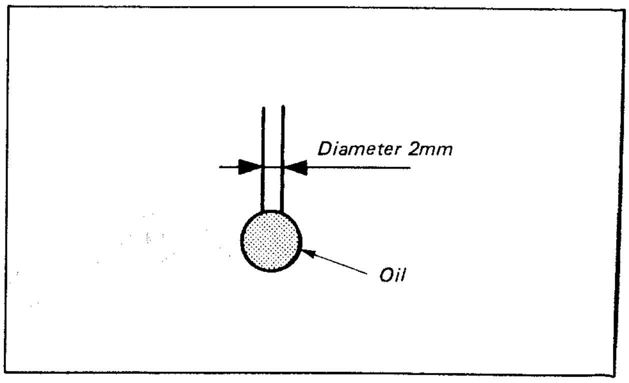


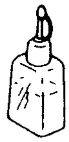
Fig. 2-7

2-2-5. Summary of Servicing Tools

Ref. No.	Name	Part Code	Fixture No.	Use
J-1	Cleaning Fluid	Y-2031-001-0	——	
J-2	Chamois Cloth	2-034-697-00	——	
J-3	Head Demagnetizer		——	
J-4	Dental Mirror (handle) Dental Mirror (mirror)	J-6080-029-A J-6080-030-1	SL-5052	Tape Path
J-5	Alignment Tape (WR5-1C)	8-967-995-06		Tape Path
J-6	Dial Tension Gauge	J-6080-827-A		Measuring torques
J-7	Tension measuring reel	J-6080-831-A		With $\phi30$ tape
J-8	Tension measuring reel	J-6080-832-A		With $\phi16$ string
J-9	No. 10 gear phase matching	J-6080-823-A	GD-2047	
J-10	Rotary DRUM JIG	(Packaged with the rotary upper drum for repairs and replacement.)		
J-11	No. 6 Guide Lock JIG	J-6080-826-A		
J-12	FWD, RVS Take-up Torque Cassette	J-6080-824-A	GD-2086	
J-13	Mode Selector	J-6080-825-A		The whole

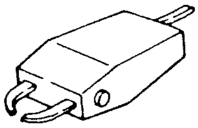
Other equipment: Oscilloscope
Analog Tester (20kΩ)

J-1

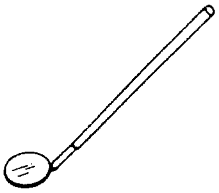


J-2

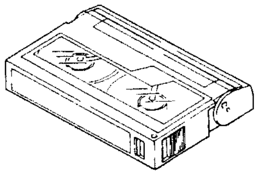
J-3



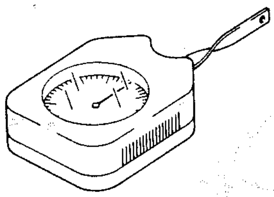
J-4



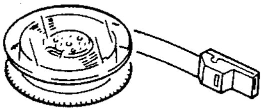
J-5



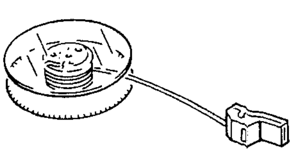
J-6



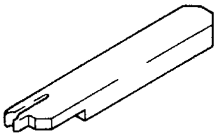
J-7



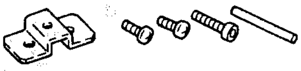
J-8



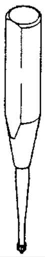
J-9



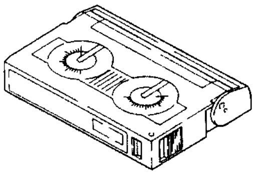
J-10 (Packaged with the rotary upper drum for repairs and replacement.)



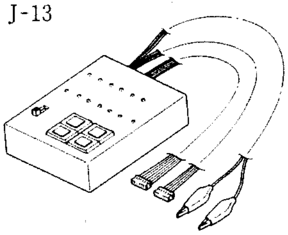
J-11



J-12



J-13



2-3. MECHANISM SECTION CHECKING, ADJUSTMENT AND REPLACEMENT

Note:
- Use a mode selector (Ref. No. J-13) to check, adjust, and replace this mechanism section.
- The modes in ☐ are set up by pressing the mode selector buttons.

2-3-1. S Reel Table Assembly

1. Removal

1) Remove the cassette compartment assembly as instructed in 2-1-1.
2) Set up the FF/REW mode.
3) Remove the screw ❶ and reel table stopper ❷ .
4) Remove the REV brake ❸ .
5) Remove the S reel table assembly ❹ . (See Fig. 2-8.)

Note: Be sure to hold the upper click part in hand when removing. (See the Note in Fig. 2-8.)

2. Remounting

1) Oil half a drop of oil on the upper spherical part of the spindle ❺ .
2) Move the S main brake assembly ❻ toward the arrow Ⓐ .
3) Remount the S reel table assembly ❹ not to touch the tension regulator band assembly ❼ .

Note: Be sure to hold the upper click part in hand when mounting. (See the Note in Fig. 2-8.)

4) Remount the REV brake ❸ .
5) Remount the reel table stopper ❷ and tighten the screw ❶ . (See Fig. 2-8.)
6) Set up the LOADING/UNLOADING mode.
7) Remount the cassette compartment assembly as instructed in 2-1-1.
8) Adjust the FWD back tention as instructed in 2-3-22.

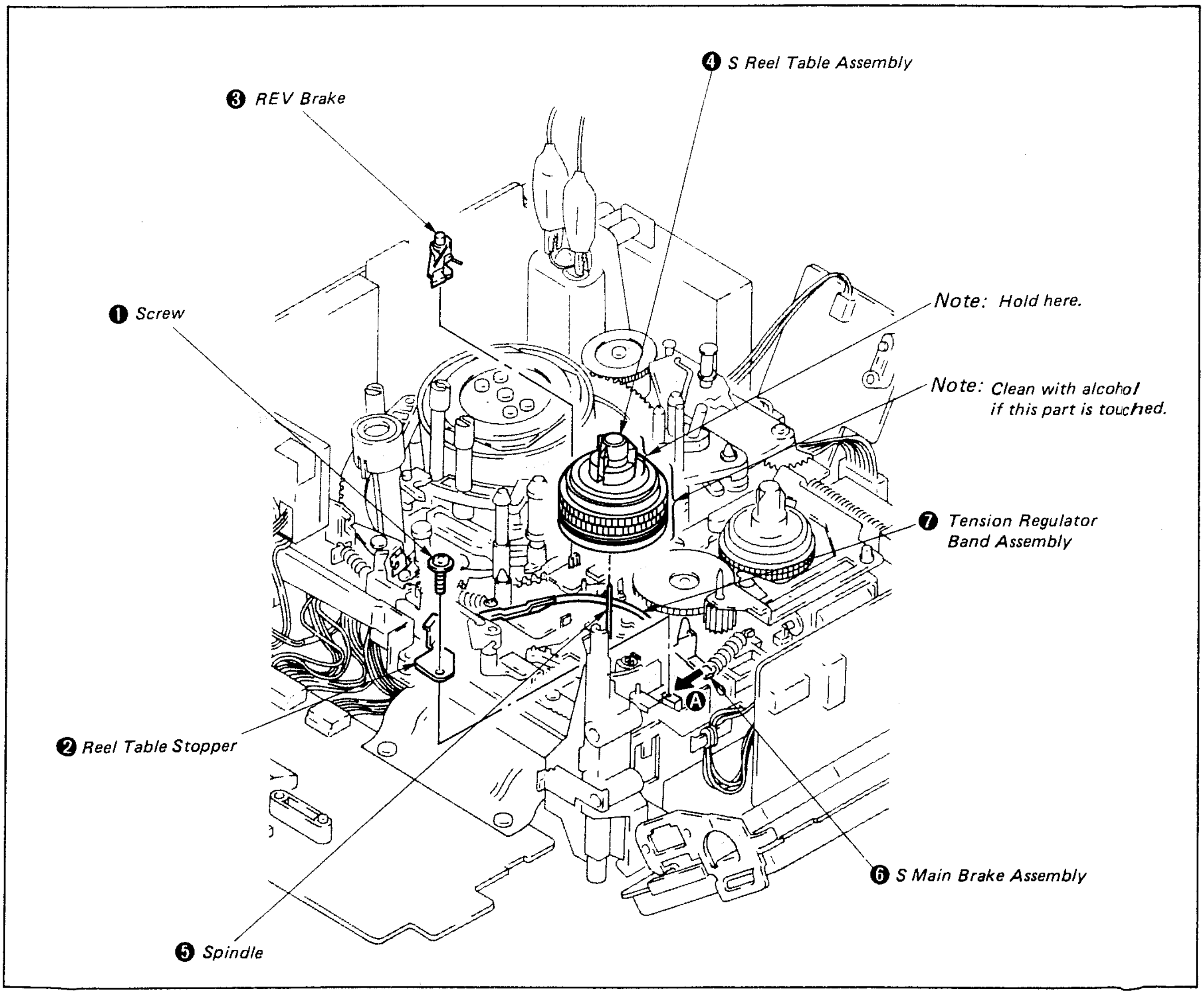

❹ S Reel Table Assembly
❸ REV Brake
❶ Screw
Note: Hold here.
Note: Clean with alcohol if this part is touched.
❼ Tension Regulator Band Assembly
Ⓐ
❷ Reel Table Stopper
❻ S Main Brake Assembly
❺ Spindle

Fig. 2-8

2-3-2. T Reel Table Assembly

1. Removal

1) Remove the cassette compartment assembly as instructed in 2-1-1.
2) Set up the UNLOADING WAIT mode.
3) Hook the spring ❷ tying the T soft brake ❶ on the click of the lock slider.
4) Remove the stopper washer ❸ and T soft brake ❶ .
5) Set up the EJECT mode.
6) Move the drive gear (B) ❹ toward the arrow Ⓐ .
7) Remove the T reel table assembly ❺ . (See Fig. 2-9.)

Note: Be sure to hold the upper click part in hand when removing. (See the Note in Fig. 2-8.)

2. Remounting

1) Oil half a drop of oil on the upper spherical part of the spindle ❻ .
2) Move the drive gear (B) ❹ toward the arrow Ⓐ . (Check that the EJECT mode is set up.)
3) Remount the T reel table assembly ❺ .
4) Remount the T soft brake ❶ and stop washer ❸ .
5) Rehook the spring ❷ on the click of the T soft brake ❶ . (See Fig. 2-9.)
6) Set up the LOADING TOP and LOADING/UNLOADING modes.
7) Remount the cassette compartment assembly as instructed in 2-1-1.

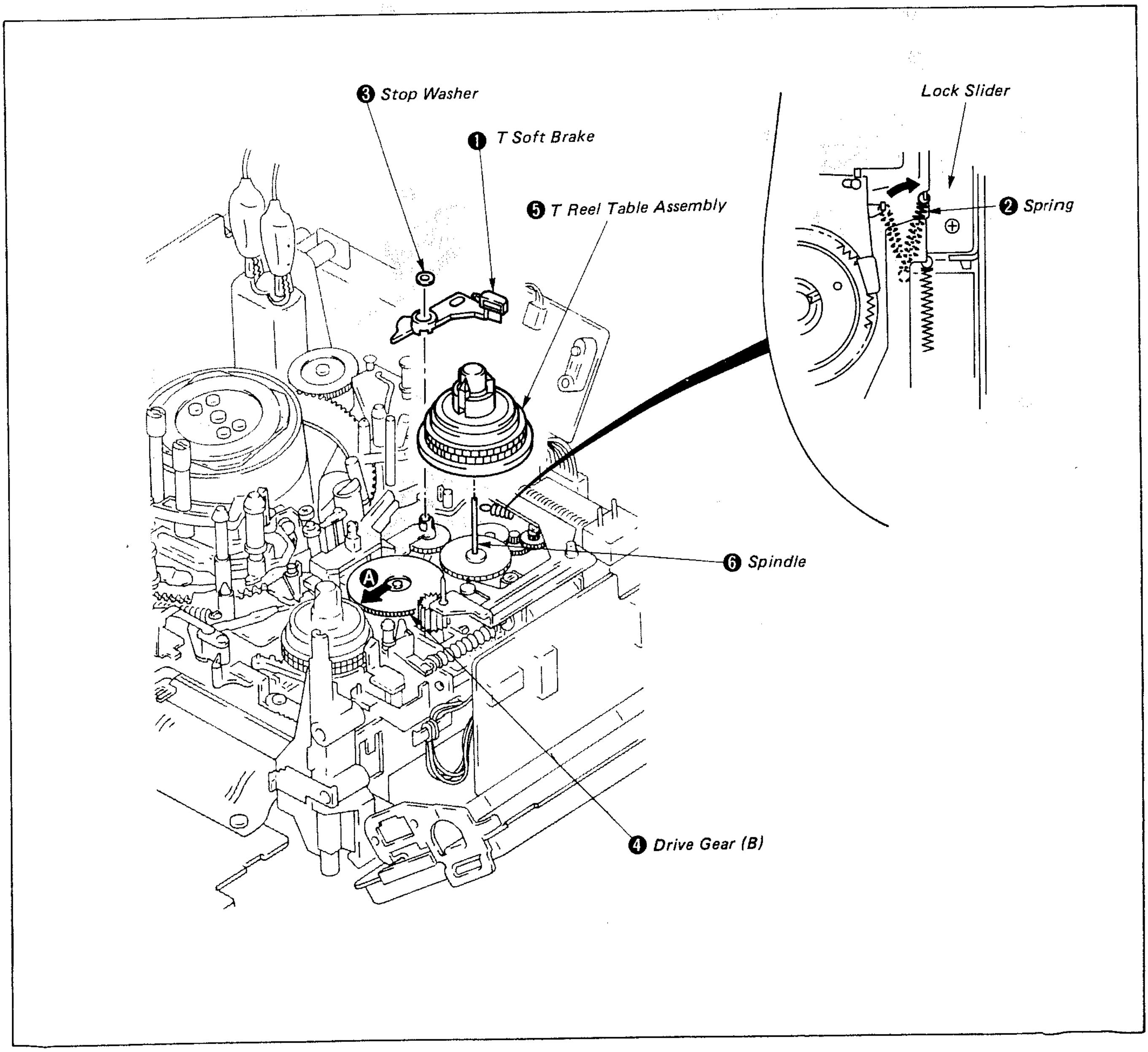


Fig. 2-9

2-3-3. Pinch Press Arm Assembly

1. Removal

1) Hook the spring ❶ on the pinch press arm assembly ❷ .
2) Remove the stop washer ❸ and pinch press arm assembly ❷ . (See Fig. 2-10.)

2. Remounting

1) Oil half a drop of oil on the spindle ❹ .
2) Remount the pinch press arm assembly ❷ and stop washer ❸ .
3) Rehook the spring ❶ on the tension regulator spring hook assembly ❺ . (See Fig. 2-10.)

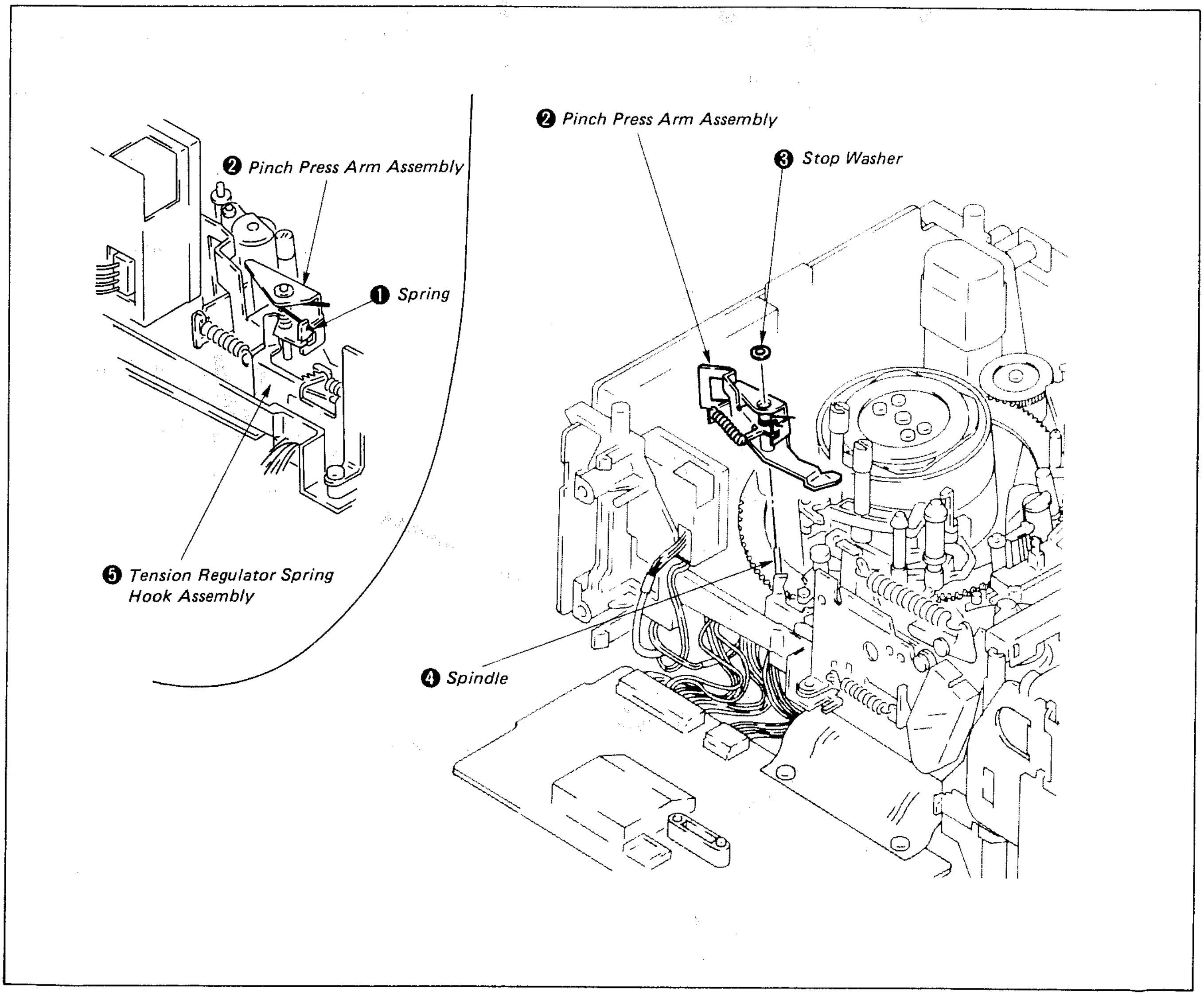

❷ Pinch Press Arm Assembly
❶ Spring
❺ Tension Regulator Spring Hook Assembly
❷ Pinch Press Arm Assembly
❸ Stop Washer
❹ Spindle

Fig. 2-10

2-3-4. Tension Regulator Arm Assembly

1. Removal

1) Remove the cassette compartment assembly as instructed in 2-1-1.
2) Change the hooking position of the spring as instructed in 1) of Removal in 1. of 2-3-3.
3) Remove the spring ❶ . (Write down the spring hooking position).
4) Remove the screw ❷ and tension regulator spring hook assembly ❸ .
5) Set up the FF/REW mode.
6) Disengage the click ❹ of the tension regulator band assembly.
7) Remove the tension regulator arm assembly ❺ . (See Fig. 2-11.)

2. Remounting

1) Oil half a drop of oil on the spindle ❻ .
2) Remount the tension regulator arm assembly ❺ inserting the tension regulator load arm assembly pin ❼ in the cam groove on the rear side of the tension regulator arm assembly ❺ .
3) Reengage the tension regulator band assembly click ❹ . (Do not touch or deform the band.)
4) Set up the LOADING/UNLOADING mode.
5) Remount the tension regulator spring hook assembly ❸ and tighten the screw ❷ .
6) Rehook the spring ❶ in the previous position and lock the screw. (See Fig. 2-11.)
7) Rehook the spring as instructed in 3) of Remounting in 2. of 2-3-3.
8) Remount the cassette compartment assembly as instructed in 2-1-1.

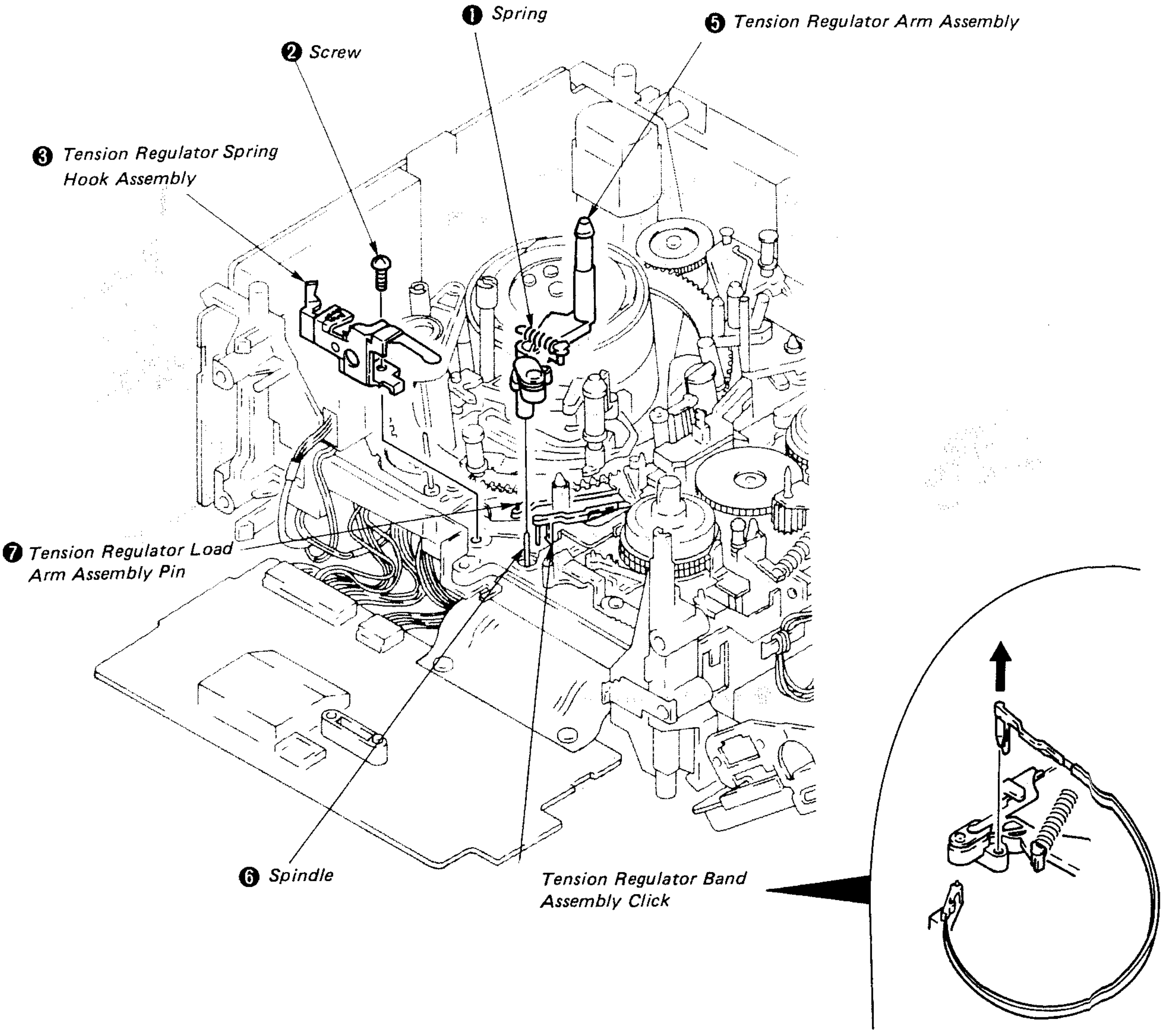

❶ Spring
❺ Tension Regulator Arm Assembly
❷ Screw
❸ Tension Regulator Spring Hook Assembly
❼ Tension Regulator Load Arm Assembly Pin
❻ Spindle
Tension Regulator Band Assembly Click

Fig. 2-11

2-3-5. Tension Regulator Band Assembly

1. Removal

1) Remove the S reel table assembly as instructed in 2-3-1.
2) Disengage the band arm assembly click ❶ .
3) Disengage the click ❷ and remove the tension regulator band assembly ❸ . (See Fig. 2-12.)

2. Remounting

1) Remount the tension regulator band assembly ❸ . (Do not touch or deform the band.)
2) Reengage the band arm assembly click ❶ . (See Fig. 2-12.)
3) Remount the S reel table assembly as instructed in 2-3-1.
4) Adjust the FWD back tension as instructed in 2-3-22.

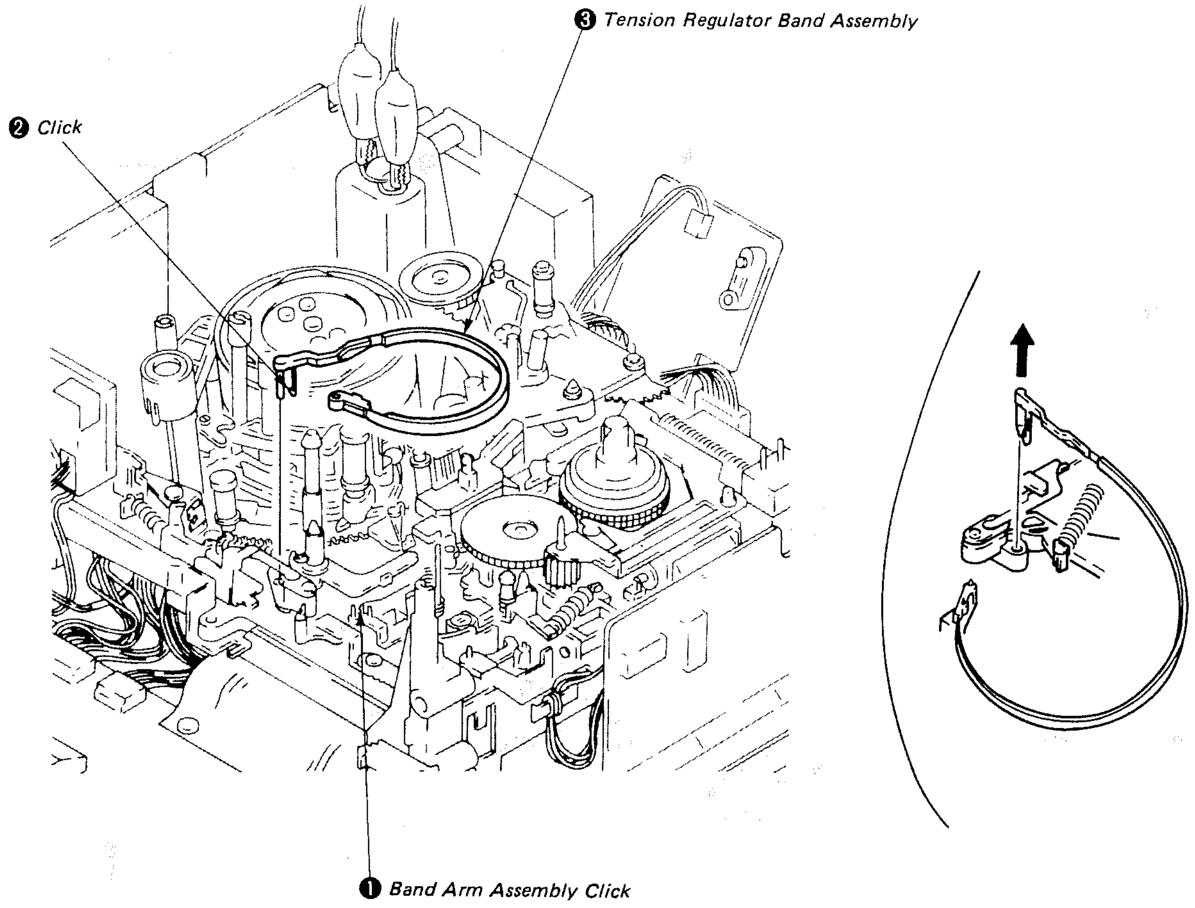

❸ Tension Regulator Band Assembly
❷ Click
❶ Band Arm Assembly Click

Fig. 2-12

2-3-6. Loading Motor Assembly

1. Removal

1) Open the MC-8 Board as instructed in 2. Removal in 2-10.
2) Remove the L motor belt ❶ .
3) Disconnect the connector ❷ CN516 (white) 2P from the RS-5 Board.
4) Remove the screw ❸ and loading motor assembly ❹ . (See Fig. 2-13.)

2. Mounting

1) Remove the loading motor shield plate from the loading motor assembly ❹ which had been mounted on the set.
2) Wind the loading motor shield plate removed in step 1) around the loading motor assembly ❹ . (See Fig. 2-14.)
3) Mount the loading motor assembly ❹ and tighten the two screws ❸ .
4) Remount the connector ❷ CN516 (white) 2P to the RS-5 Board.
5) Remount the L motor belt ❶ .
6) Reassemble the circuit board reversing the sequence.

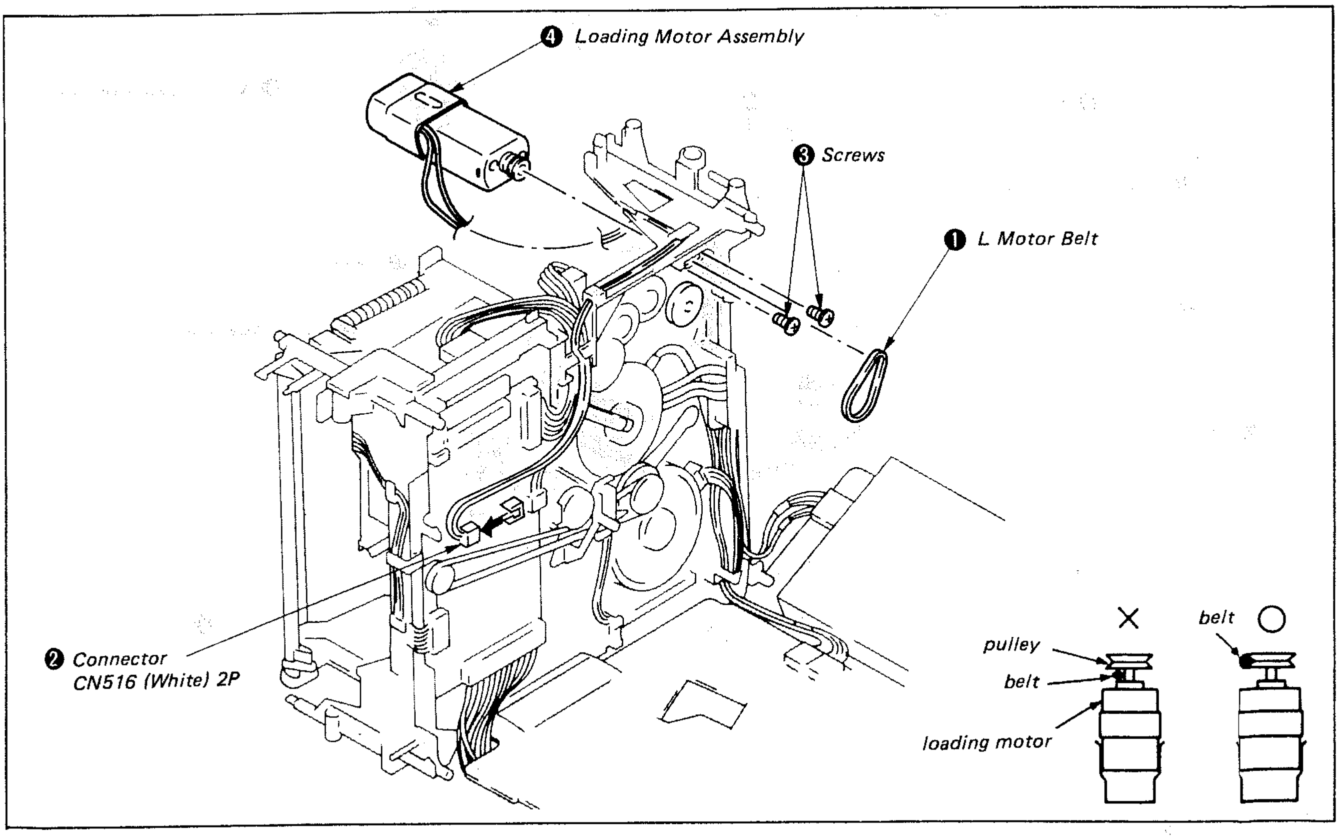
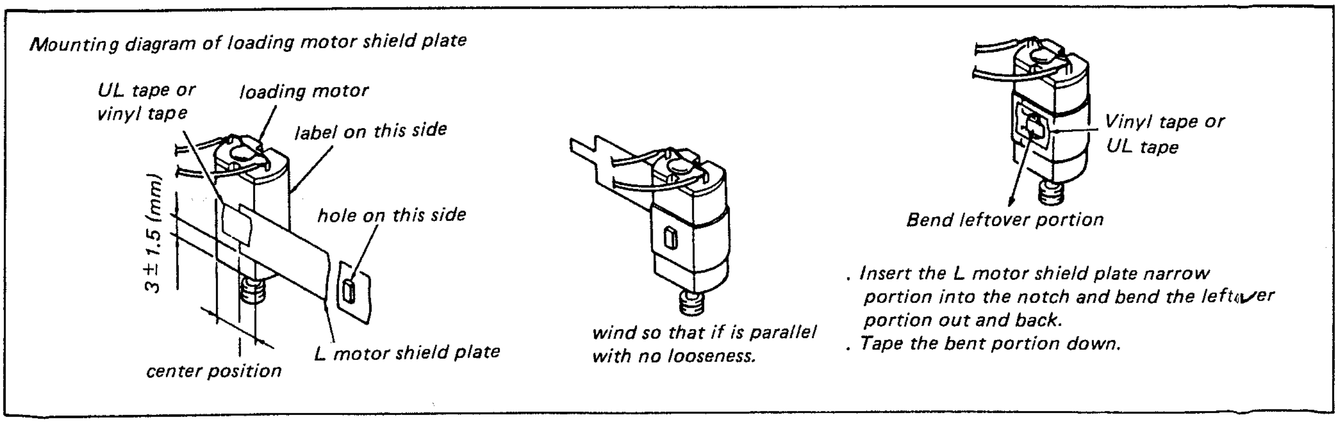

❹ Loading Motor Assembly
❸ Screws
❶ L Motor Belt
❷ Connector CN516 (White) 2P
×
belt ○
pulley
belt
loading motor

Fig. 2-13


Mounting diagram of loading motor shield plate
UL tape or vinyl tape
loading motor
label on this side
hole on this side
3 ± 1.5 (mm)
center position
L motor shield plate
Vinyl tape or UL tape
Bend leftover portion

wind so that if is parallel with no looseness.

. Insert the L motor shield plate narrow portion into the notch and bend the leftover portion out and back.
. Tape the bent portion down.

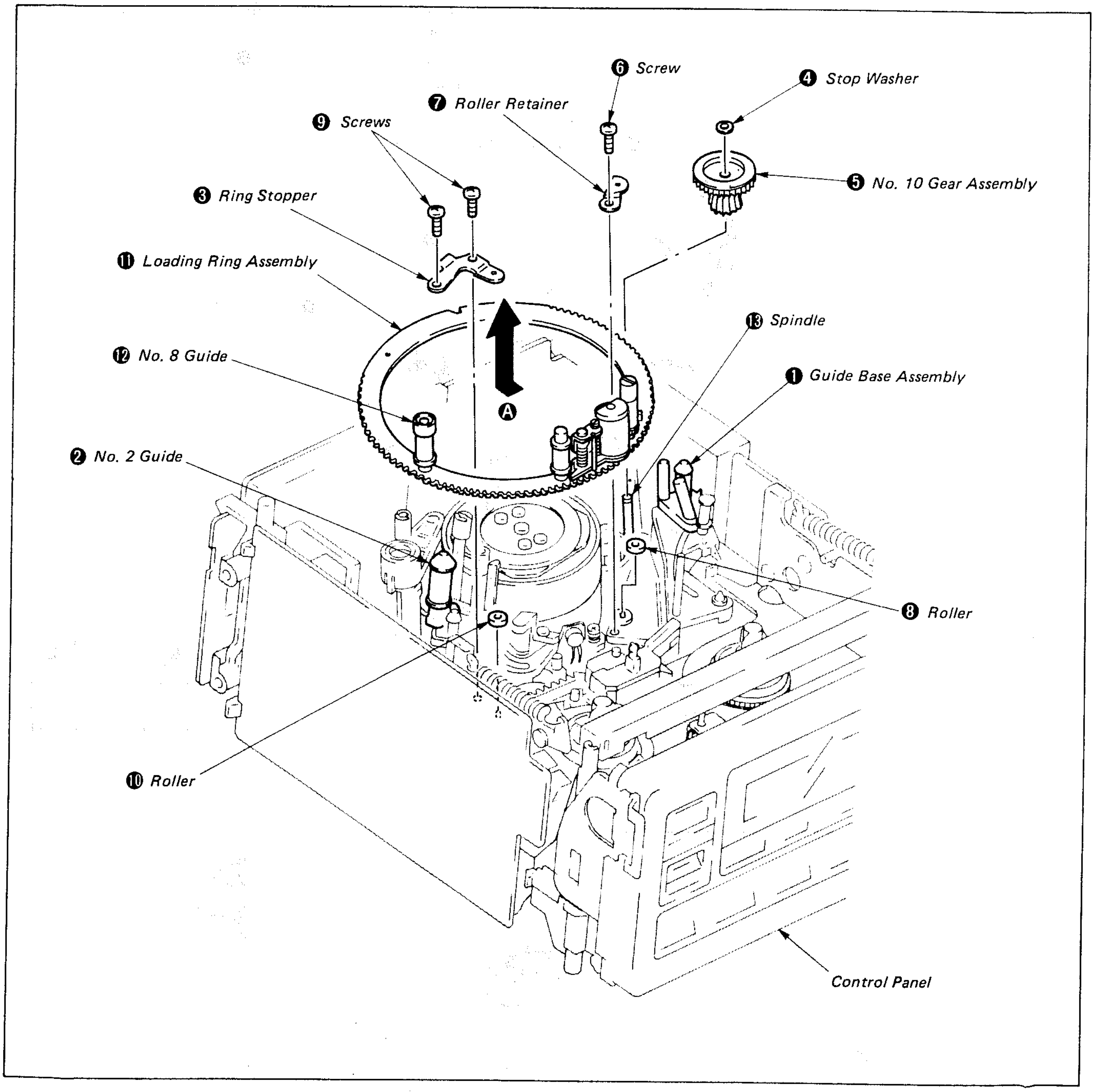
Fig. 2-14

2-3-7. Loading Ring Assembly

1. Removal

1) Operate the mode selectors to move the guide base assembly ❶ to immediately before the lock and the No. 2 guide ❷ to the position where the screw of the ring stopper ❸ immediately before the lock. (Do not move the loading ring assembly ⓫ .)
2) Remove the stop washer ❹ and disengage the No. 10 gear assembly ❺ .
3) Remove the screw ❻ , roller retainer ❼ and roller ❽ .
4) Remove the two screws ❾ , ring stopper ❸ and roller ❿ .
5) Remove the loading ring assembly ⓫ in the arrow Ⓐ direction. (See Fig. 2-15.)

Note: Care should be taken not to strike the drum when removing the loading ring assembly ⓫ .



❻ Screw
❹ Stop Washer
❼ Roller Retainer
❾ Screws
❺ No. 10 Gear Assembly
❸ Ring Stopper
⓫ Loading Ring Assembly
⓭ Spindle
⓬ No. 8 Guide
❶ Guide Base Assembly
Ⓐ
❷ No. 2 Guide
❽ Roller
❿ Roller
Control Panel

Fig. 2-15

2. Remounting

1) Remount the loading ring assembly ⓫ in an unthreading condition (with the pinch roller moved to the control panel side). (Check that the loading ring assembly is in the condition of 1) of Removal.)
2) Remount the roller ❿ and ring stopper ❸ and tighten the two screws ❾ . (The No. 8 guide ⓬ should be located near the control panel than the ring stopper ❸ .)
3) Remount the roller ❽ and roller retainer ❼ and tighten the screw ❻ . (Check that the loading ring assembly fits the three rollers.)
4) Oil half a drop of oil on the spindle ⓭ . (See Fig. 2-15.)
5) Check that the tooth of the drive changer is engaging the dent of the L-SW assembly and plug the No. 10 gear phase alignment jig (Ref. No. J-9) (See Fig. 2-16.)
6) Remount the No. 10 gear ❺ and stop washer ❹ pressing the No. 8 guide ⓬ to the ring stopper ❸ .
7) Pull out the No. 10 gear phase alignment jig.
8) Set up the LOADING TOP mode.

Note: Be sure to adjust the tape path as instructed in 2-4 after remounting.

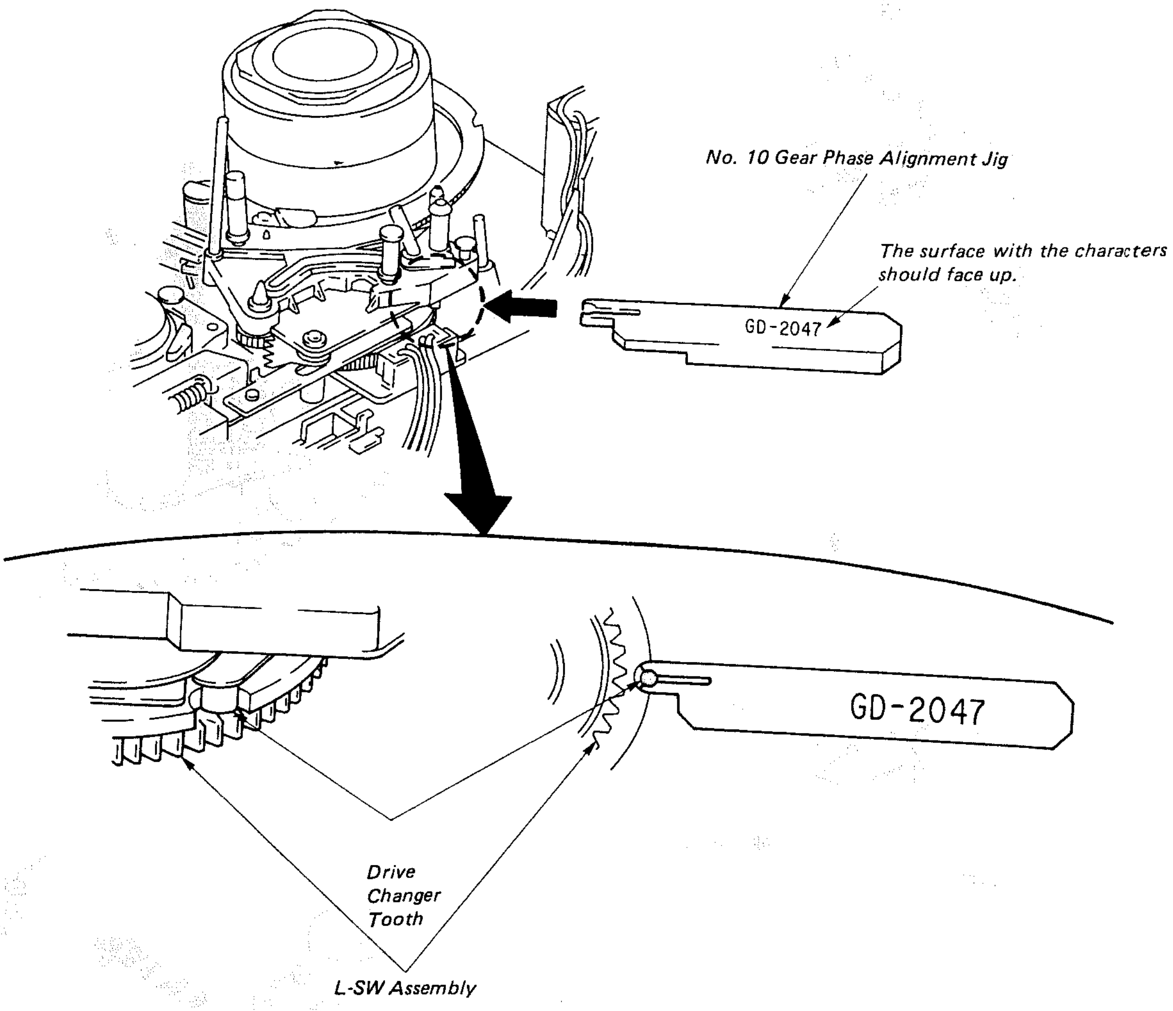

No. 10 Gear Phase Alignment Jig
The surface with the characters should face up.
GD-2047
GD-2047
Drive Changer Tooth
L-SW Assembly

Fig. 2-16

2-3-8. Pinch Roller Assembly

1. Removal

1) Remove the loading ring assembly as instructed in 2-3-7.
2) Remove the stop washer ①. (See Fig. 2-17.)
3) Change the hooking position of the spring ③ on the No. 7 guide assembly ②. (See Fig. 2-18.)
4) Rotate the pinch roller assembly ④ in the arrow Ⓐ direction. (See Fig. 2-19.)
5) Remove the pinch roller assembly ④ toward the arrow Ⓑ. (See Fig. 2-20.)
6) Remove the spring ③. (See Fig. 2-21.)

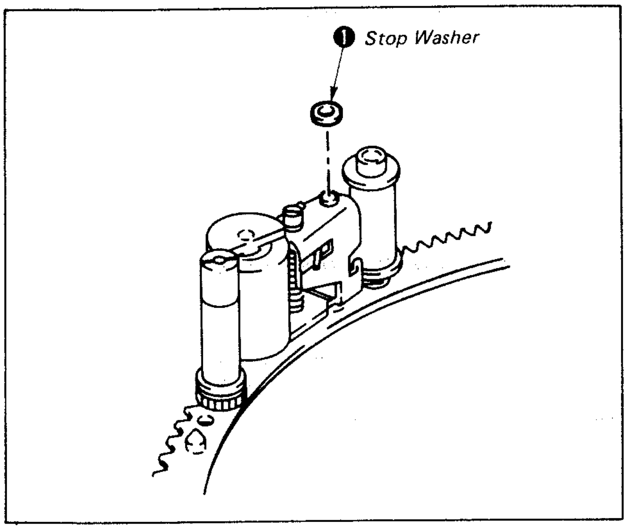

① Stop Washer

Fig. 2-17

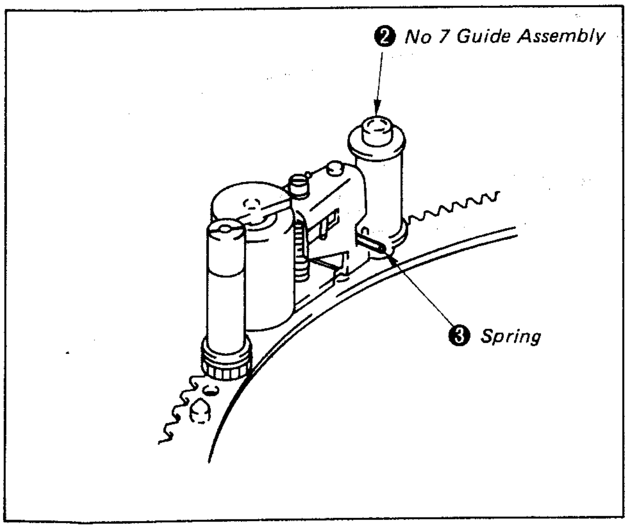

② No 7 Guide Assembly
③ Spring

Fig. 2-18

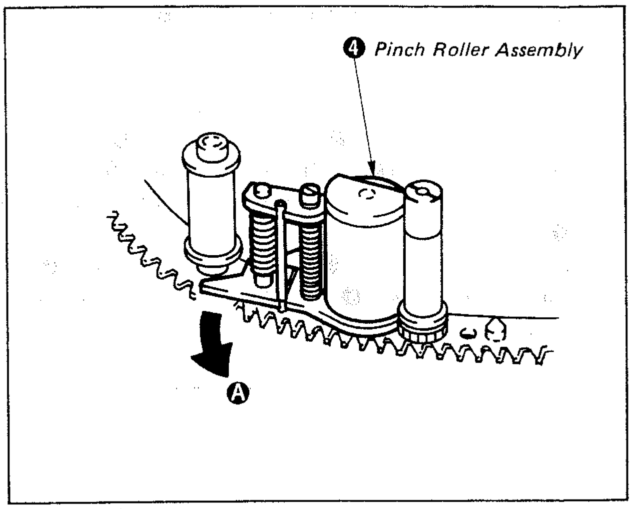

④ Pinch Roller Assembly
Ⓐ

Fig. 2-19

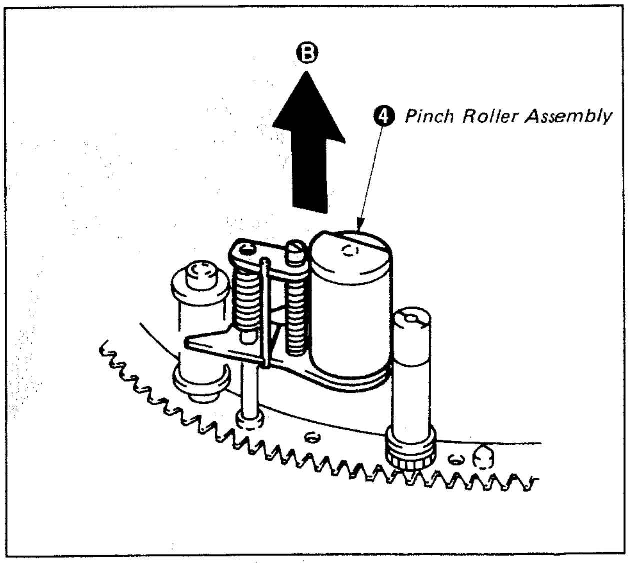

Ⓑ
④ Pinch Roller Assembly

Fig. 2-20

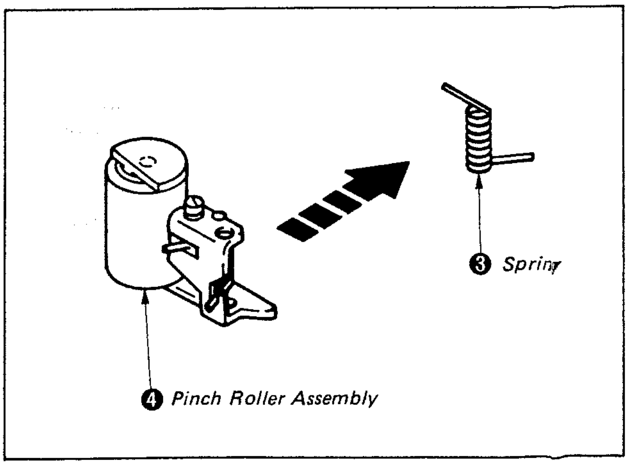

③ Spring
④ Pinch Roller Assembly

Fig. 2-21

2. Remounting

1) Rehook the spring ❸ . (See Fig. 2-22.)
2) Reinsert a thin object like a clip ❺ into the pinch roller assembly hole ❻ . (See Fig. 2-23 and 24.)
3) Recontact the loading ring assembly spindle ❼ with the tip of the clip ❺ and fit the pinch roller assembly ❹ . (See Fig. 2-25 and 26.)
4) Rehook the spring on the No. 7 guide assembly ❷ . Confirm that the spring is hooked to part Ⓐ at this time. (See Fig. 2-27.)
5) Remount the stop washer ❶ . (See Fig. 2-28.)
6) Remount the loading ring assembly as instructed in 2-3-7.

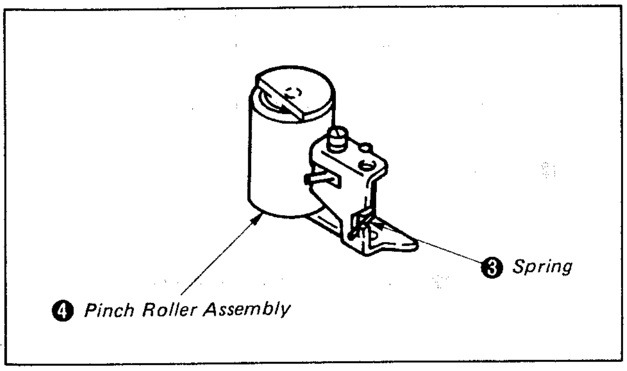

❸ Spring
❹ Pinch Roller Assembly

Fig. 2-22

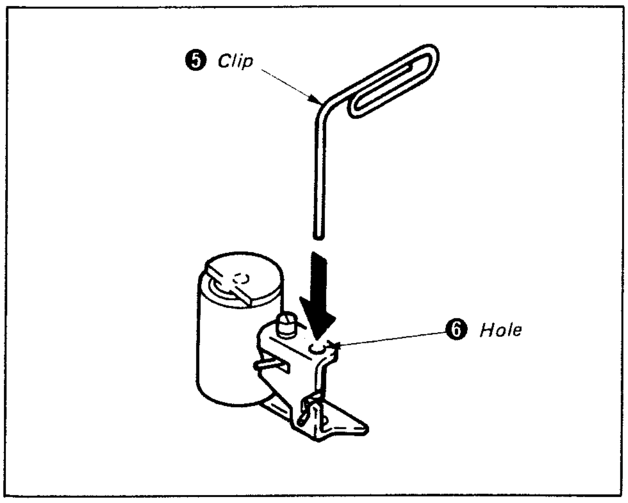

❺ Clip
❻ Hole

Fig. 2-23

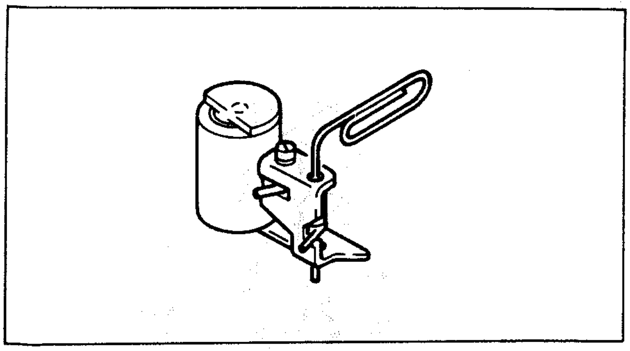


Fig. 2-24

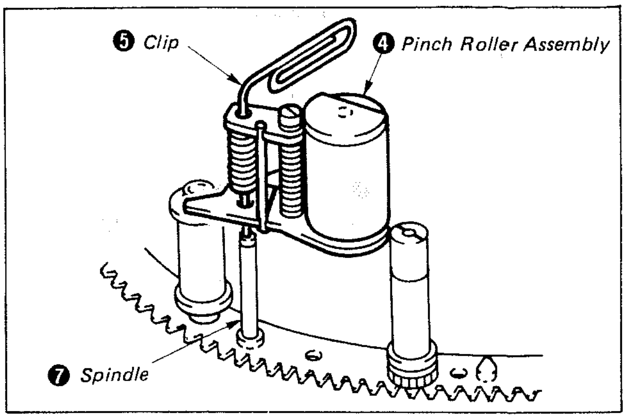

❺ Clip
❹ Pinch Roller Assembly
❼ Spindle

Fig. 2-25

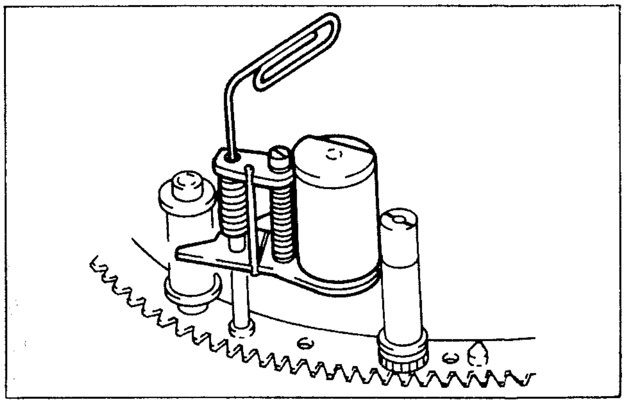


Fig. 2-26

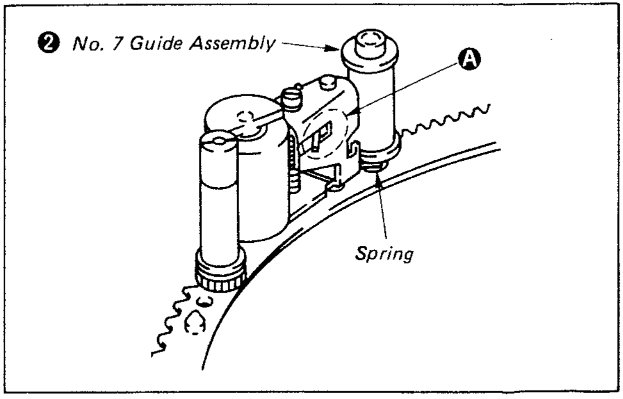

❷ No. 7 Guide Assembly
Ⓐ
Spring

Fig. 2-27

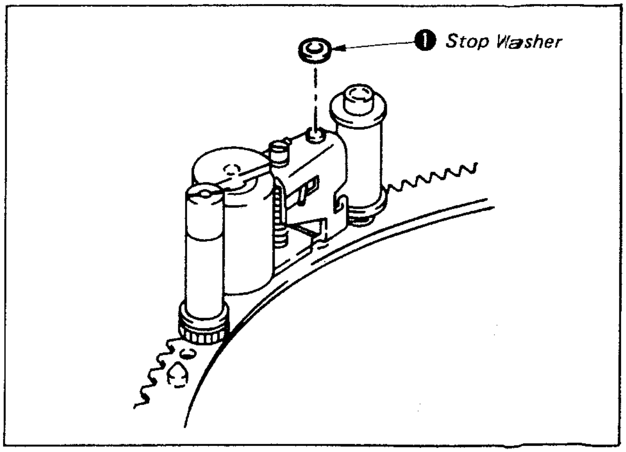

❶ Stop Washer

Fig. 2-28

2-3-9. Slant Guide Chassis Assembly

1. Removal

1) Set up the EJECT mode and raise the cassette compartment asembly.
2) Remove the loading ring assembly as instructed in 2-3-7.
3) Remove the screw ❶ and E ring ❷ .
4) Remove the slant guide chassis assembly ❸ . (See Fig. 2-29.)

2. Remounting

1) Operate the mode selector and align the righthand edge of the L slider and that of the lock slider. (See Fig. 2-30.)
2) Set the guide base assembly of the slant guide chassis assembly in an unthreading condition (with the guide base assembly moved to the control panel side) and remount it. (See Fig. 2-31.)
   Check the meshing position of the slant guide drive gear and the L slider assembly gear at this time.
3) Refit the E ring ❷ and tighten the screw ❶ . (See Fig. 2-29.)
4) Set to Condition 1) of 1. Remounting in 2-3-7.
5) Remount the loading ring assembly as instructed in 2-3-7.
6) Lower the cassette compartment assembly.

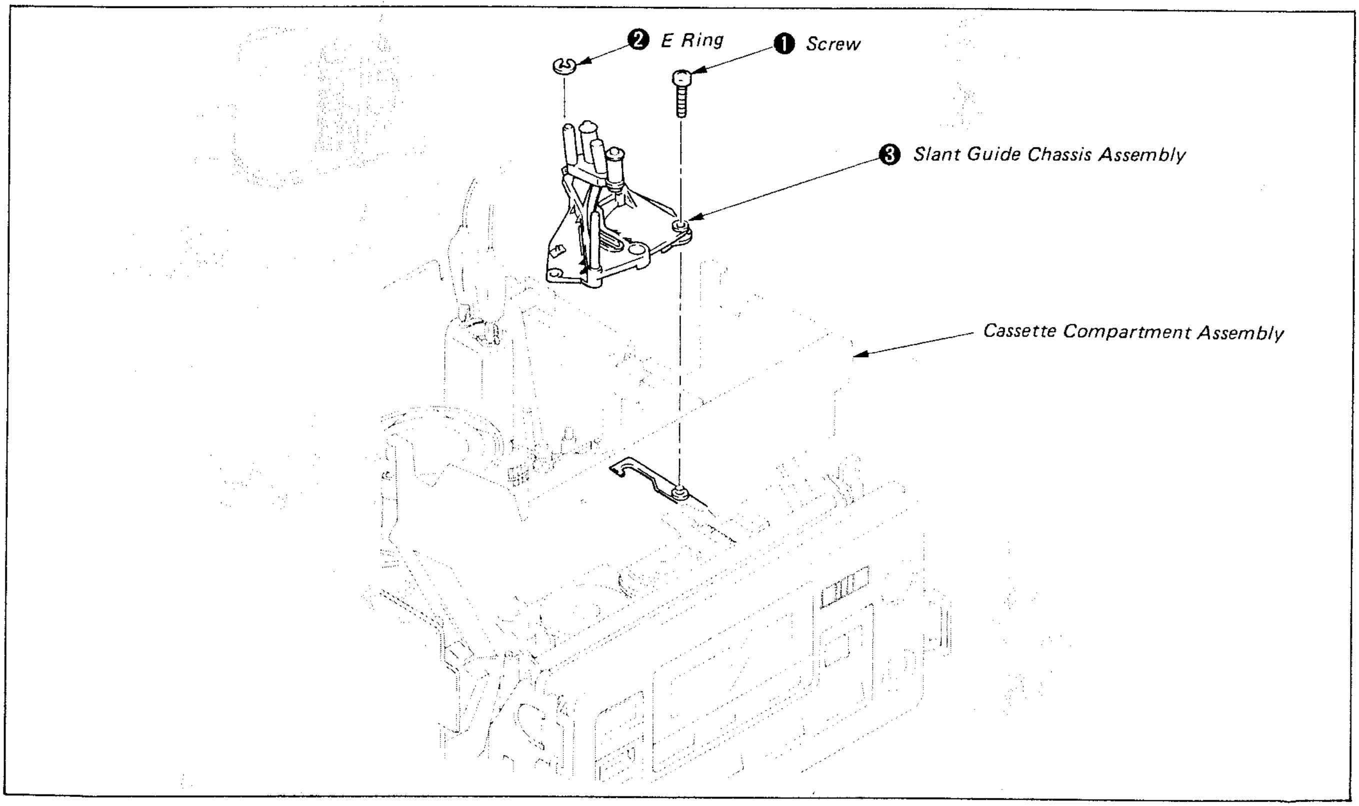

❷ E Ring
❶ Screw
❸ Slant Guide Chassis Assembly
Cassette Compartment Assembly

Fig. 2-29

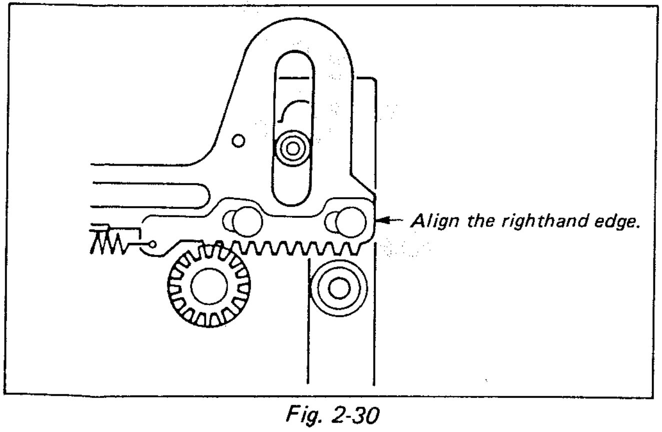

Align the righthand edge.

Fig. 2-30

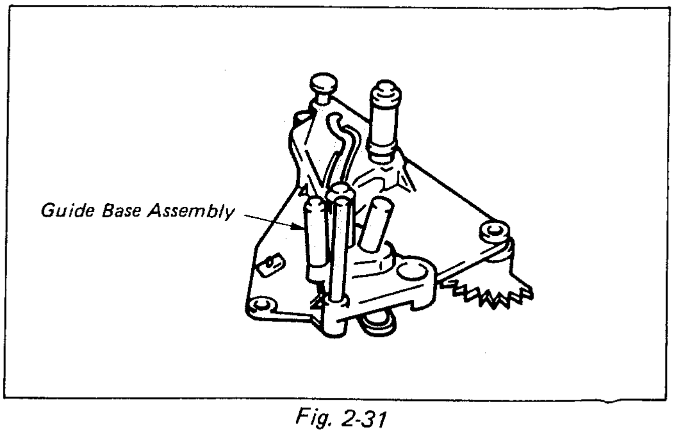

Guide Base Assembly

Fig. 2-31

2-3-10. No. 2 Guide Assembly

1. Removal

1) Remove the tape stopper ❶ .
2) Rotate the rotary upper drum counterclockwise so that the head does not contact.
3) Remove the drum guard screw ❷ .
4) Remove the screw ❸ .
5) Remove the guide nut ❹ of the No. 3 guide, as well as the guide flange ❺ , guide ❻ and compression spring ❼ .
6) Remove the No. 2 guide assembly ❽ . (See Fig. 2-32.)

2. Remounting

1) Mesh the toothless part Ⓐ of the toothed wheel under the No. 2 guide assembly (entrance guide (P) assembly) and that Ⓑ of the L slider.
2) Remount the compression spring ❼ , guide ❻ , and guide flange ❺ in this order and tighten the guide nut ❹ temporarily.
3) Tighten the screw ❸ .
4) Tighten the drum guard screw ❷ .
5) Refit the tape stopper ❶ . (See Fig. 2-32.)
6) Adjust the FWD back tention as instructed in 2-3-22.

Note: Be sure to adjust the tape path as instructed in 2-4 after remounting.

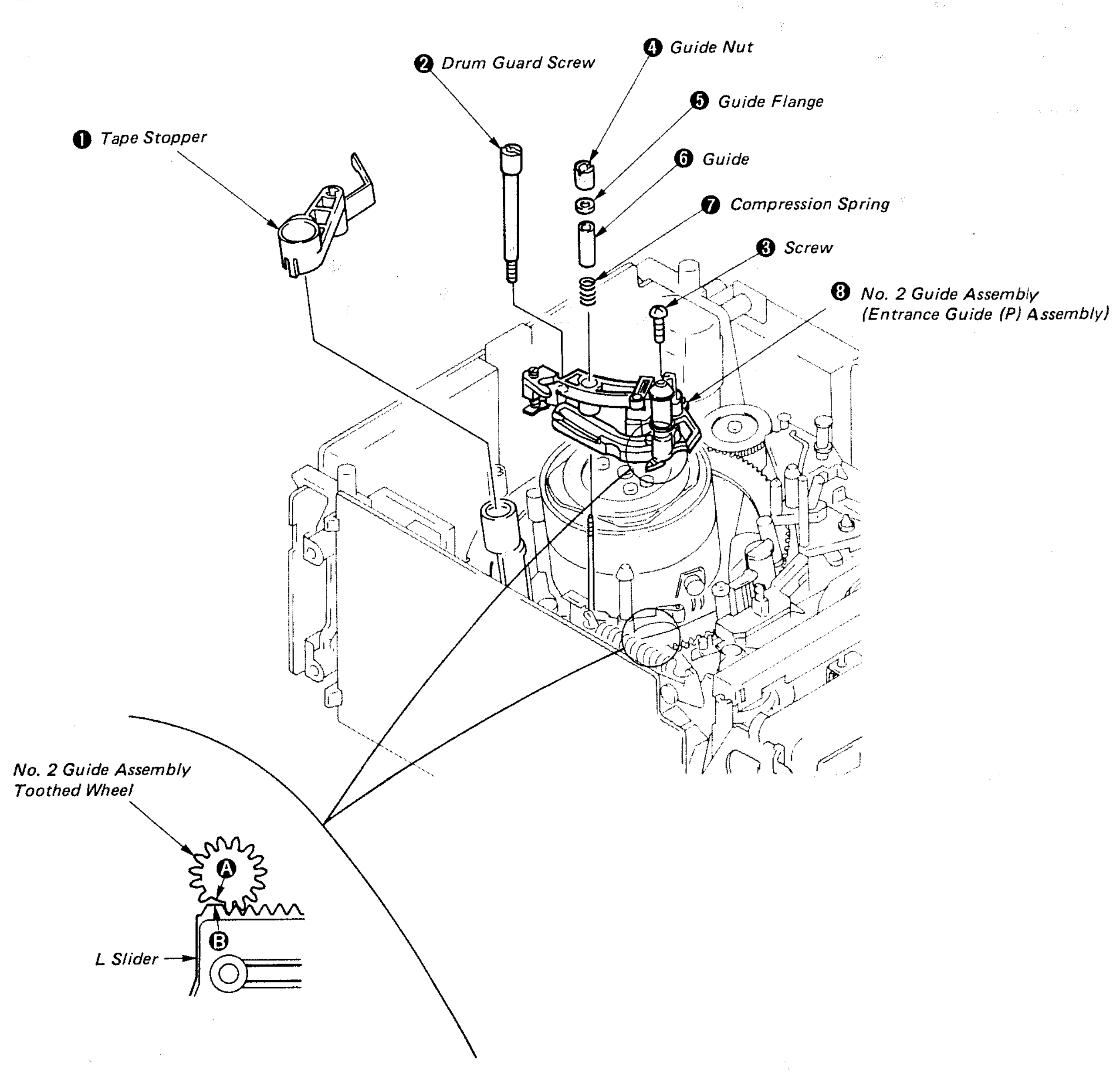

❹ Guide Nut
❷ Drum Guard Screw
❺ Guide Flange
❶ Tape Stopper
❻ Guide
❼ Compression Spring
❸ Screw
❽ No. 2 Guide Assembly
(Entrance Guide (P) Assembly)
No. 2 Guide Assembly
Toothed Wheel
Ⓐ
Ⓑ
L Slider

Fig. 2-32

2-3-11. L Slider Assembly

1. Removal

1) Remove the slant guide chassis assembly as instructed in 2-3-9.
2) Remove the No. 2 guide assembly (entrance guide (P) assembly) as instructed in 2-3-10.
3) Set up the DRUM START mode.
4) Remove the slant guide drive gear ❶ .
5) Remove the pin of the tension regulator load arm assembly ❷ from the cam groove of the tension regulator arm assembly. (Refer to 2-3-4 Tension regulator arm assembly.)
6) Remove the two stopper washers ❸ .
7) Remove the L slider assembly ❺ push the RL arm assembly lug ❹ toward the arrow Ⓐ .
8) Remove the stopper washer ❻ and tension regulator load arm assembly ❷ . (See Fig. 2-33.)

2. Remounting

1) Grease the parts. (See Fig. 2-34.)
2) Remount the tension regulator load arm assembly ❷ and stop washer ❻ . (See Fig. 2-34.)
3) Remount the L slider assembly ❺ pushing the RL arm assembly lug ❹ toward the arrow Ⓐ .
4) Refit the two stop washers ❸ .
5) Reinsert the pin of the tension regulator load arm assembly ❷ into the groove of the M slider. (Refer to 2-3-15 M Slider.)
6) Reinsert the pin of the tension regulator load arm assembly ❷ in the cam groove of the tension regulator arm assembly referring to 2) of 2. Remounting in 2-3-4. (Refer to 2-3-4 Tension regulator arm assembly.)
7) Operate the mode selector and align the righthand edges of the L slider and lock slider. (Refer to 1) of 2. Remounting in 2-3-9.)
8) Mesh the notch of the slant guide drive gear with the tooth at the lefthand edge of the L slider assembly by sliding one tooth. (See Fig. 2-35.)
9) Remount the No. 2 guide assembly in accordance with 2-3-10.
10) Remount the slant guide chassis assembly as instructed in 2-3-9.

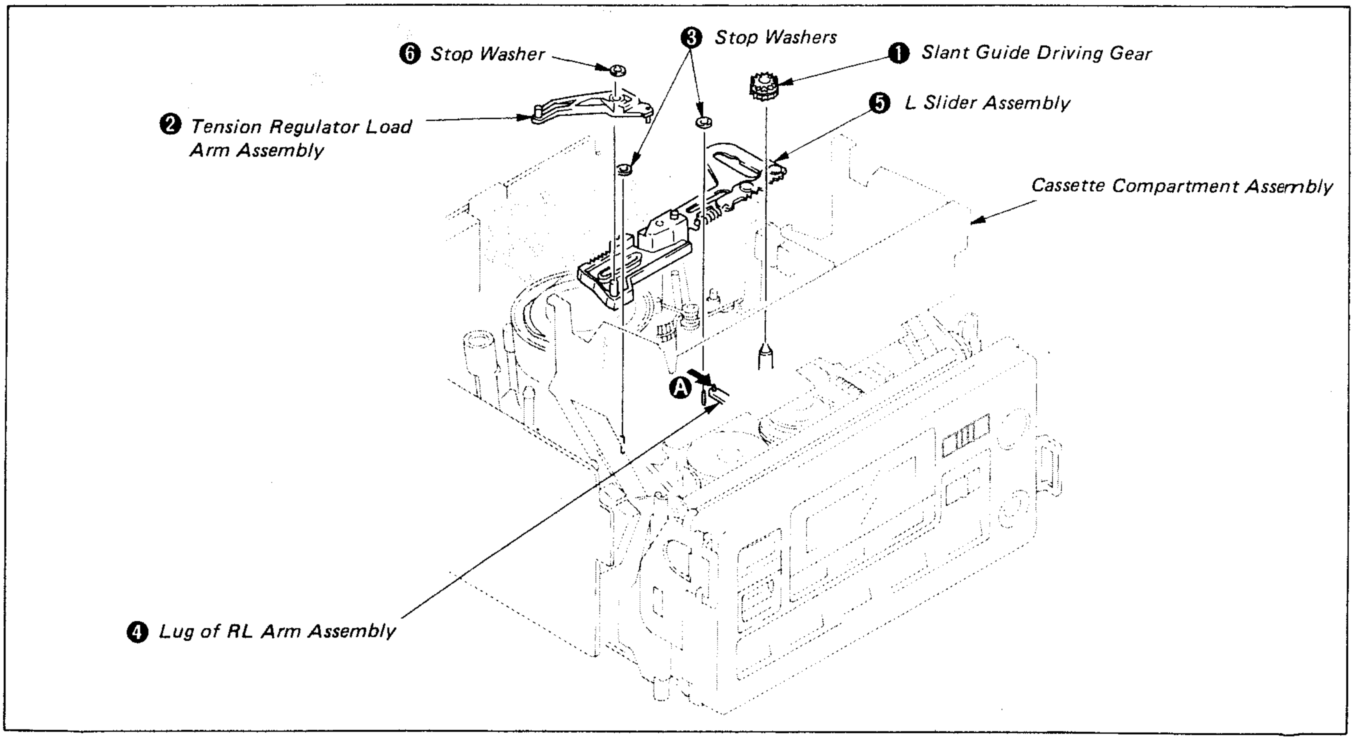

❻ Stop Washer
❸ Stop Washers
❶ Slant Guide Driving Gear
❺ L Slider Assembly
❷ Tension Regulator Load Arm Assembly
Cassette Compartment Assembly
Ⓐ
❹ Lug of RL Arm Assembly

Fig. 2-33

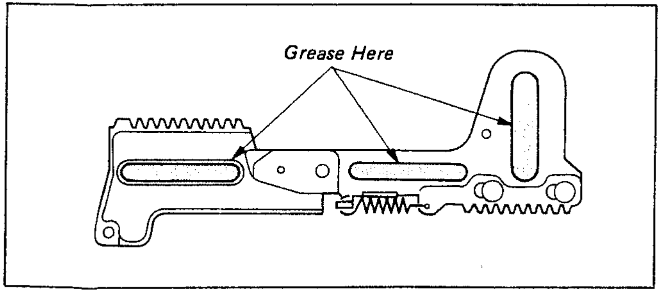

Grease Here

Fig. 2-34

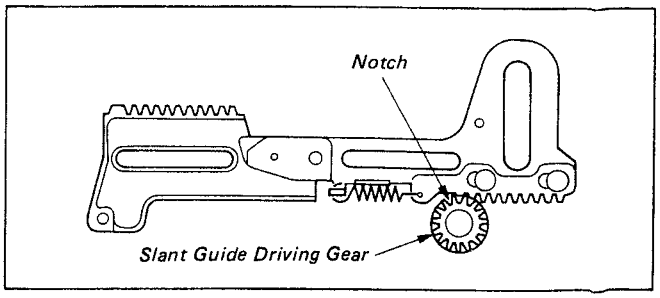

Notch
Slant Guide Driving Gear

Fig. 2-35

2-3-12. L-SW Assembly

1. Removal

1) Remove the L slider assembly as instructed in 2-3-11.
2) Remove the lock slider retainer ❶ .
3) Remove the screw ❷ and lock slider ❸ .
4) Remove the stop washer ❹ and spring ❺ .
5) Remove the drive changer assembly ❻ .
6) Remove the connector ❼ .
7) Remove two screws ❽ and L-SW assembly ❾ . (See Fig. 2-36.)

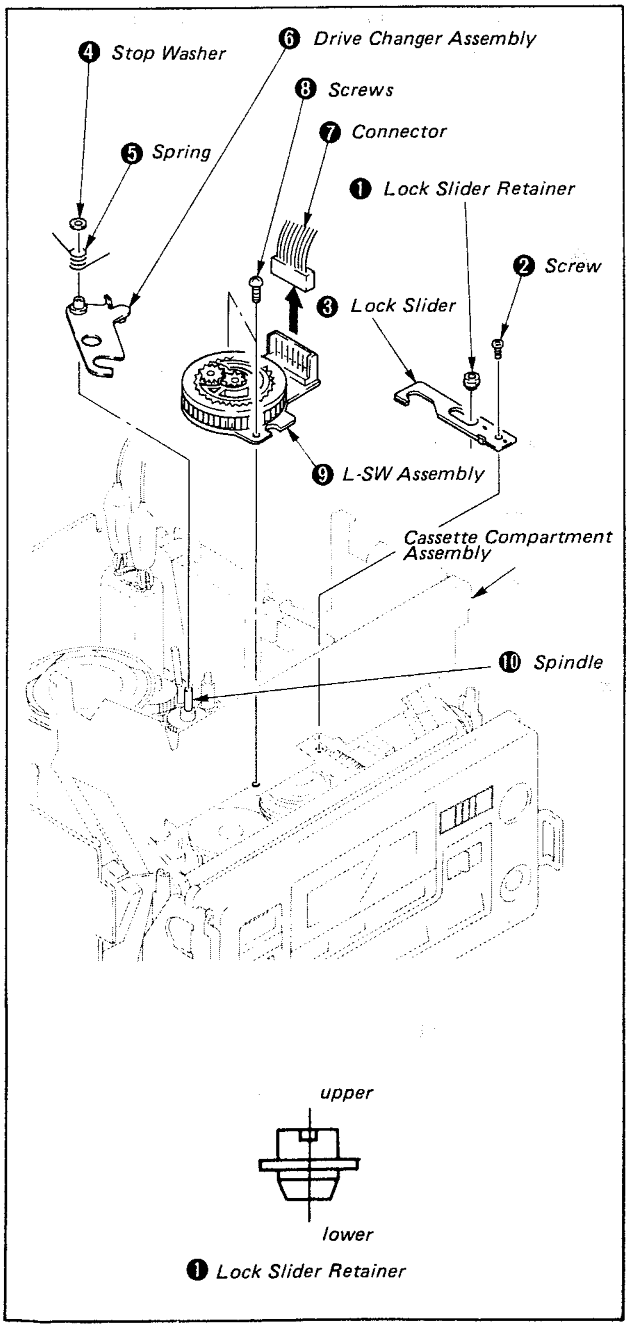

❹ Stop Washer
❻ Drive Changer Assembly
❽ Screws
❼ Connector
❺ Spring
❶ Lock Slider Retainer
❷ Screw
❸ Lock Slider
❾ L-SW Assembly
Cassette Compartment Assembly
❿ Spindle
upper
lower
❶ Lock Slider Retainer

Fig. 2-36

2. Remounting

1) Oil half a drop of oil on the spindle (planetary roller spindle) of the L-SW assembly ❾ .
2) Remount the L-SW assembly ❾ and tighten two screws ❽ .
3) Reconnect the connector ❼ .
4) Operate the mode selector and check that the L-SW assembly ❾ rotates.
5) Oil half a drop of oil on the spindle ❿ .
6) Grease the drive changer assembly ❻ . (See Fig. 2-37.)
7) Remount the drive changer assembly ❻ . (See Fig. 2-36.)
8) Rehook the spring ❺ and refit the stop washer ❹ .
9) Operate the mode selector and check that the L-SW assembly ❾ rotates.
10) Remount the lock slider ❸ and tighten the screw ❷ . Confirm that the positioning dowel is firmly in place.
11) Remount the lock slider retainer ❶ . Note correct vertical direction. (See Fig. 2-36.)
12) Operate the mode selector and set in the position shown in Fig. 2-38. The DC roller should be in the groove.
13) Remount the L slider assembly as instructed in 2-3-11.

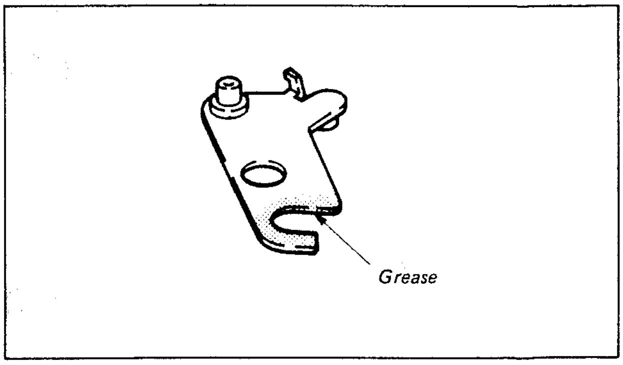


Fig. 2-37

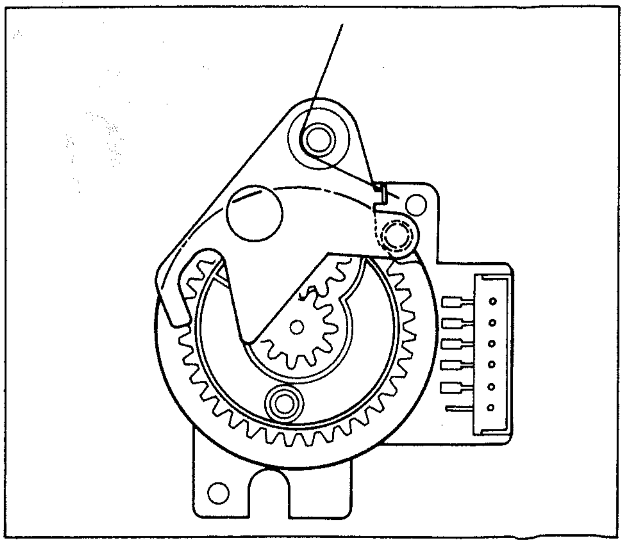


Fig. 2-38

2-3-13. Plunger Solenoid

1. Removal

1) Open the MC-8 Board and disconnect the connector CN501 (white) 3P as instructed in section 2 (disassembly). Removal in 2-10.
2) Remove the cassette compartment assembly as instructed in 2-1-1.
3) Remove the spring ❶ .
4) Remove two stop washers ❷ .
5) Remove the screw ❸ and lock slider ❹ .
6) Remove two screws ❺ and the plunger solenoid ❻ . (Be careful not to inflict scars on the T reel table by a screwdriver. Do not touch the table.) (See Fig. 2-39.)

2. Remounting

1) Reinsert the pin ❼ of the plunger solenoid in the P arm hole ❽ and tighten two screws ❺ . Be careful not to inflict scars on the T reel table by a screwdriver or touch it.)
2) Remount the lock slider ❹ and tighten the screw ❸ .
3) Refit the two stop washers ❷ .
4) Refit the spring ❶ . (See Fig. 2-39.)
5) Remount the cassette compartment assembly in accordance with 2-1-1.
6) Reconnect the connector CN501 (white) 3P on the MC-8 Board.

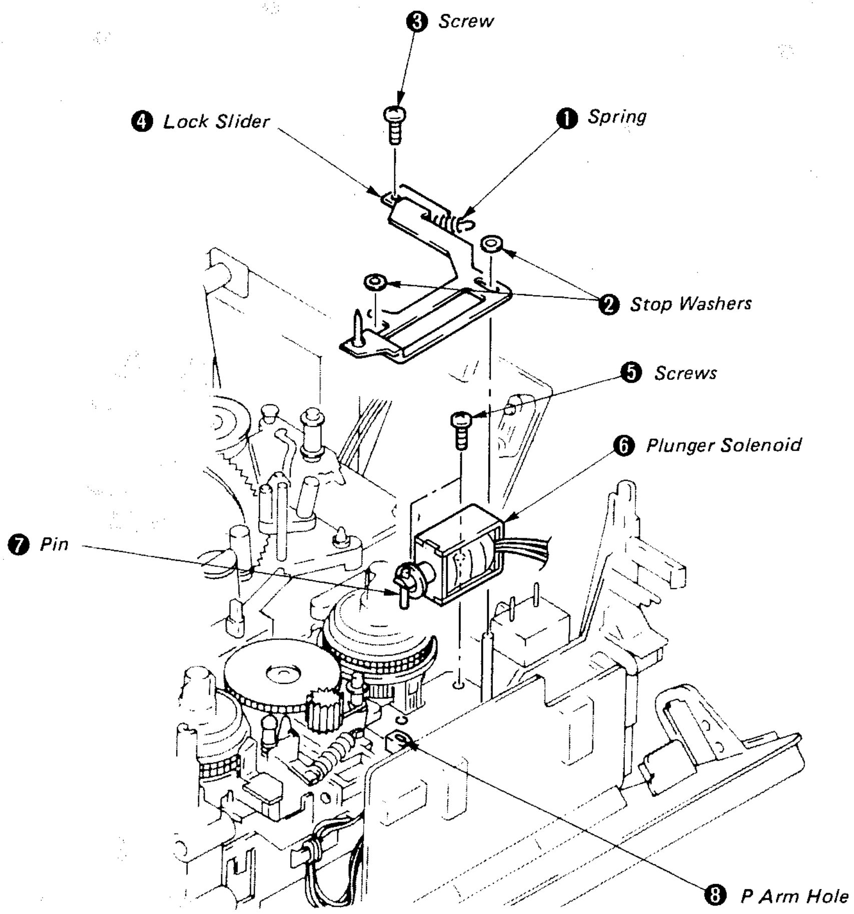


Fig. 2-39

2-3-14. M-SW Assembly

1. Removal

1) Open the MC-8 Board as instructed in section 2, remove the connector CN515 (black) 2P from the RS-5 Board, and extend the wire stretching to the outside.
2) Remove the T reel table assembly as instructed in 2-3-2.
3) Remove the stop washer ❶ and drive gear (B) assembly ❷ .
4) Remove the complete LD-1 board ❸ . (See Fig. 2-40.)
5) Remove the lock slider as instructed in 3), 4), and 5) of 1. Removal in 2-3-13.
6) Remove the spring ❹ and B release arm assembly ❺ .
7) Check that the EJECT mode is set up.
8) Remove the stop wahser ❻ and mode output gear ❼ .
9) Remove the screw ❽ and RECOG SW assembly (S902) ❾ .
10) Disconnect the connector ❿ .
11) Remove three screws ⓫ , control motor cover ⓬ and M-SW assembly ⓭ .
12) Remove solder Ⓐ and the control motor (M903) ⓮ . (See Fig. 2-41.)

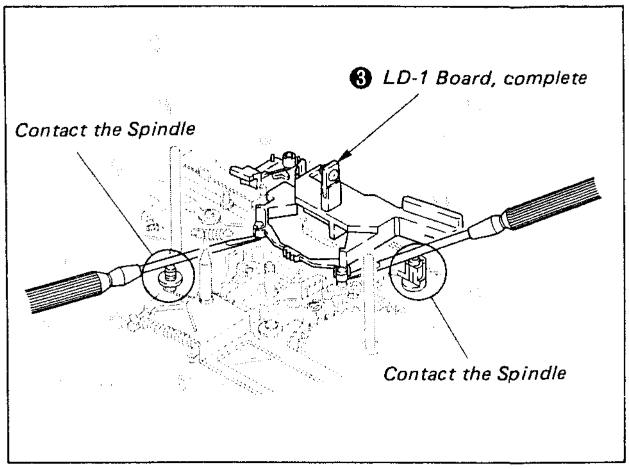

❸ LD-1 Board, complete
Contact the Spindle
Contact the Spindle

Fig. 2-40

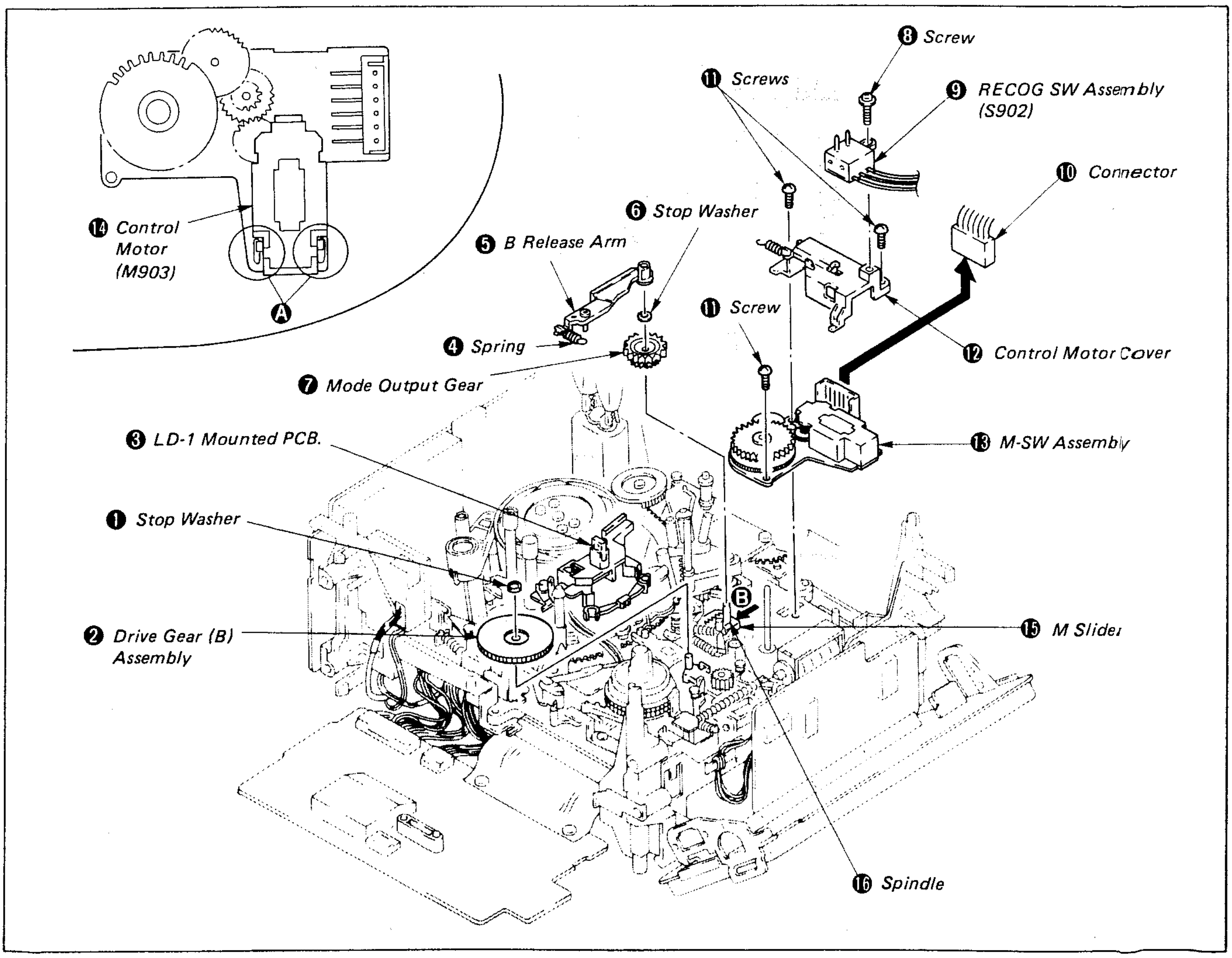

❽ Screw
⓫ Screws
❾ RECOG SW Assembly (S902)
❿ Connector
⓮ Control Motor (M903)
Ⓐ
❻ Stop Washer
❺ B Release Arm
⓫ Screw
❹ Spring
⓬ Control Motor Cover
❼ Mode Output Gear
❸ LD-1 Mounted PCB.
⓭ M-SW Assembly
❶ Stop Washer
Ⓑ
❷ Drive Gear (B) Assembly
⓯ M Slider
⓰ Spindle

Fig. 2-41

2. Remounting

1) Resolder the control motor (M903) ⓮ .
2) Remount the M-SW assembly ⓭ and control motor cover ⓬ and tighten three screws ⓫ .
3) Reconnect the connector ❿ .
4) Remount RECOG SW assembly (S902) ❾ and tighten the screw ❽ .
5) Check that the EJECT mode is set up.
6) Check that the M slider ⓯ is moved toward the arrow Ⓑ fully.
7) Oil half a drop of oil on the spindle ⓰ . (See Fig. 2-41.)
8) Remount the mode output gear ❼ so that the alignment holes are linear. (See Fig. 2-42.)
   Caution required here since there are two holes in the M-SW assembly gear.
9) Refit the stop washer ❻.
10) Set to the LOADING/UNLOADING mode.
11) Remount the B release arm assembly ❺ and rehook the spring ❹.
12) Remount the lock slider as instructed in 2), 3) and 4) of 2. Remounting in 2-3-13.
13) Remount the complete LD-1 board ❸ .
14) Remount the drive gear (B) assembly ❷ and refit the stop washer ❶. (See Fig. 2-41.)
15) Remount the T reel table assembly as instructed in 2-3-2.
16) Connect the connector CN515 (black) 2P to the RS-5 Board.

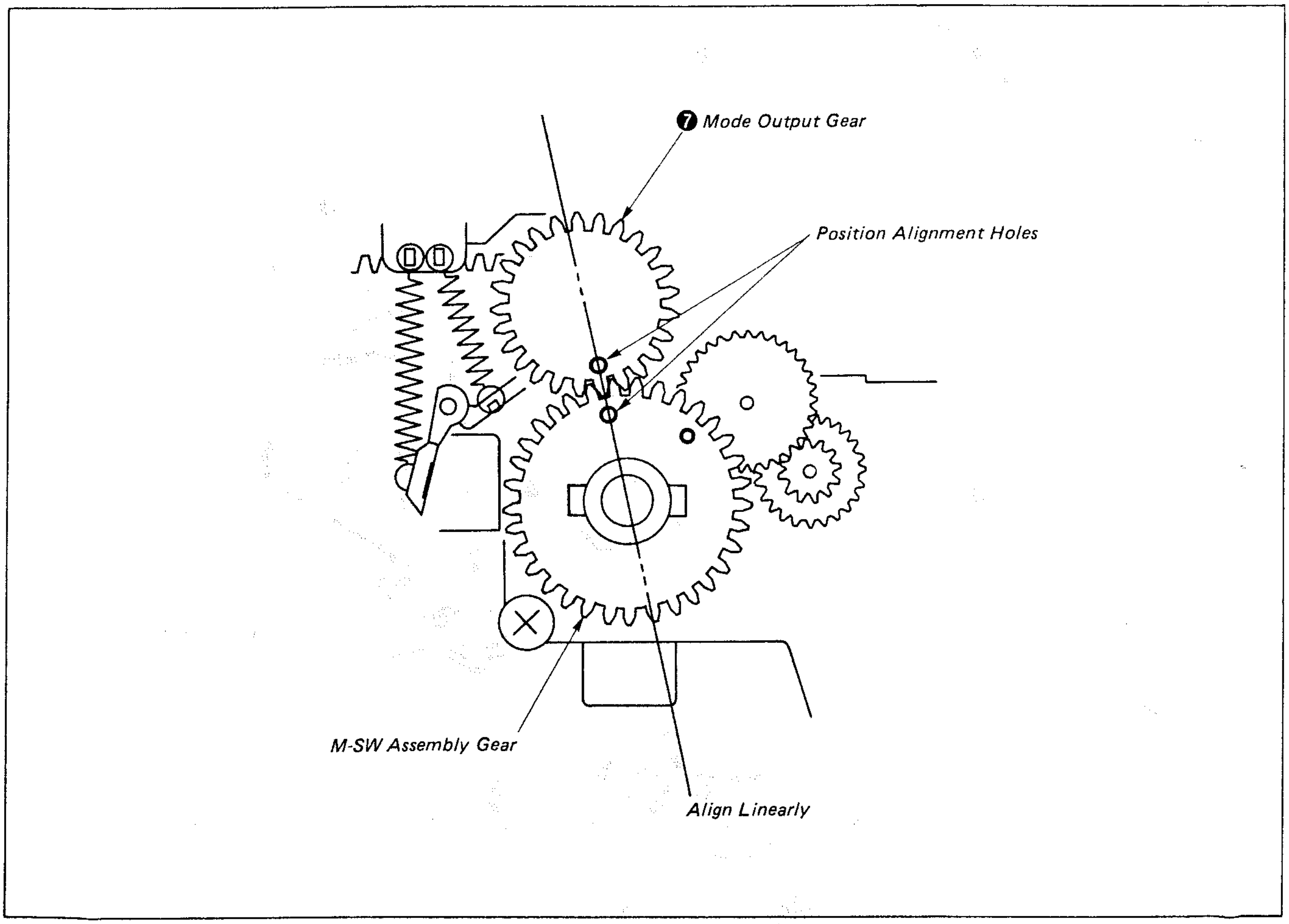


Fig. 2-42

2-3-15. M Slider

1. Removal

1) Open the MC-8 Board as instructed in section 2 and remove the timing belt ❶ .
2) Remove the pinch press arm assembly as instructed in 2-3-3.
3) Remove the tension regulator arm assembly as instructed in 2-3-4.
4) Remove the tension regulator band assembly as instructed in 2-3-5.
5) Remove the loading ring assembly as instructed in 2-3-7.
6) Perform Steps 1) to 6) of 2-3-14 (1. Removal).
7) Remove the tension regulator load arm assembly as instructed in 8) of 1. Removal in 2-3-11.
8) Remove the spring ❷ .
9) Remove two stop washers ❸ , S main brake assembly ❹ and T main brake assembly ❺ .
10) Set up the LOADING TOP and LOADING/UNLOADING modes.
11) Remove two screws ❻ and the driving arm complete assembly ❼ .
12) Perform Step 8) of 1. Removal in 2-3-14.
13) Remove two springs ❽ .
14) Remove the REW brake assembly ❾ .
15) Remove the stop washer ❿ and B release slider ⓫ .
16) Remove the RVS arm ⓬ .
17) Remove the stop washer ⓭ , spring ⓮ , and RL arm ⓯ .
18) Move the M slider ⓰ toward the right (leave approximately 5mm on the left).
19) Remove the E ring ⓱ and pinch press lever assembly ⓲ .
20) Remove the spring ⓳ and hard brake (S) ⓴ .
21) Remove the stop washer ㉑ , push the mode arm ㉒ toward the arrow 🅐 , then remove the M slider ⓰ by lifting the lefthand side of the M slider ⓰ . (See Fig. 2-43.)

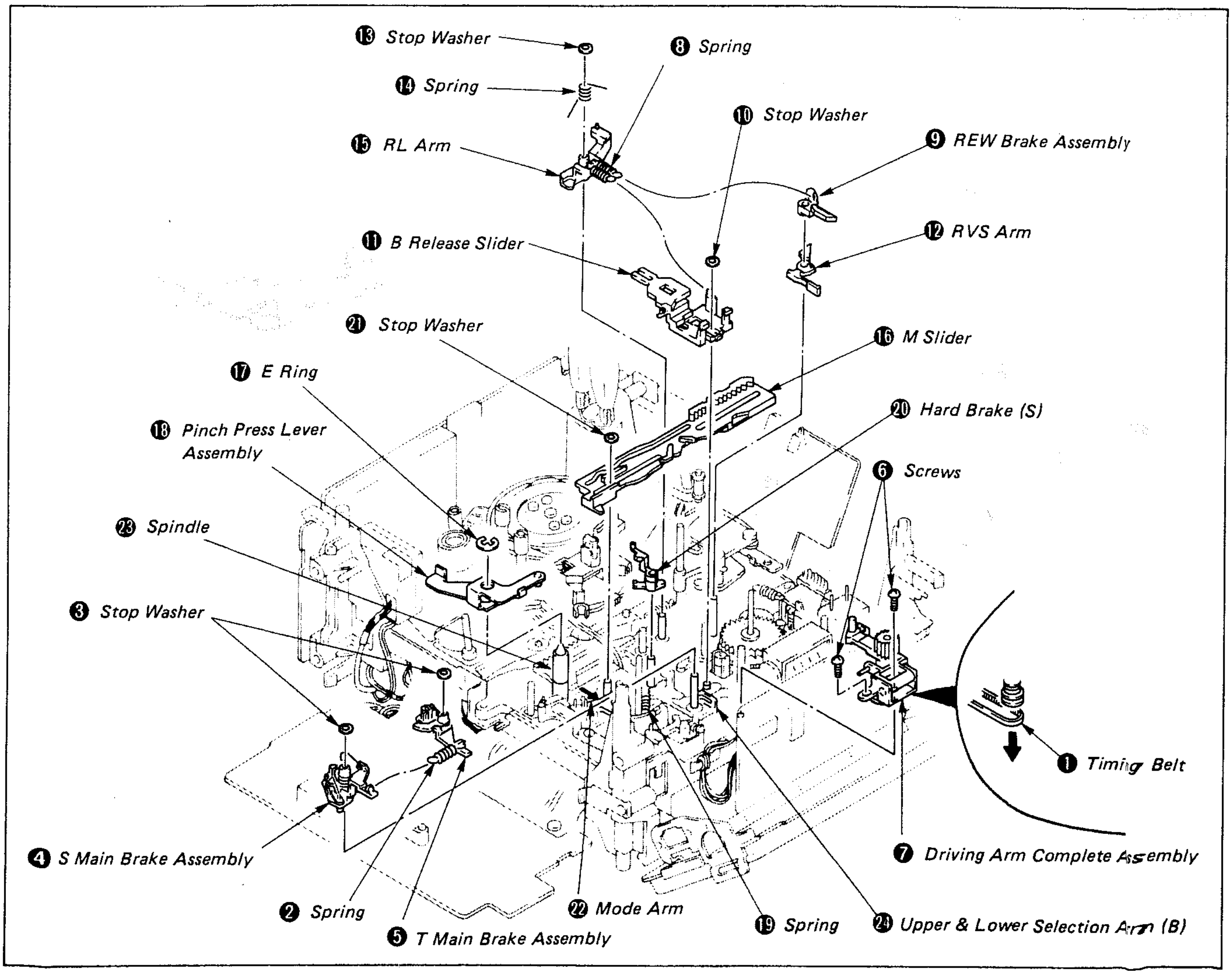

⓭ Stop Washer
❽ Spring
⓮ Spring
❿ Stop Washer
⓯ RL Arm
❾ REW Brake Assembly
⓫ B Release Slider
⓬ RVS Arm
㉑ Stop Washer
⓰ M Slider
⓱ E Ring
⓴ Hard Brake (S)
⓲ Pinch Press Lever Assembly
❻ Screws
㉓ Spindle
❸ Stop Washer
❶ Timing Belt
❹ S Main Brake Assembly
❼ Driving Arm Complete Assembly
❷ Spring
㉒ Mode Arm
⓳ Spring
㉓ Upper & Lower Selection Arm (B)
❺ T Main Brake Assembly

Fig. 2-43

2. Remounting

1) Grease the slider. (See Fig. 2-44.)
2) Push the mode arm ㉒ in the arrow Ⓐ direction, remount the M slider ⑯ referring to Fig. 2-45 and paying attention to the vertical position relationship with other portions of the slider, and refit the stop washer ㉑ . (See Fig. 2-43.)
3) Remount the hard brake (S) ⑳ and rehook the spring ⑲ .
4) Grease as shown in Fig. 2-46.
5) Oil half a drop of oil on the parts below the spindle ㉓ groove, mount the pinch press lever assembly ⑱ , and refit the E ring ⑰ .
6) Remount the RL arm ⑮ , rehook the spring ⑭ , and refit the stop washer ⑬ .
7) Remount the RVS arm ⑫ .
8) Remount the B release slider ⑪ and refit the stop washer ⑩ .
9) Remount the REW brake assembly ⑨ .
10) Rehook two springs ⑧ .

Note: Rehook two springs as noted below so as not to misplace them.
The spring for the B release slider
outside diam: 2mm, wire diam: 0.18mm
The spring for the REW ass'y
outside diam: 1.6mm, wire diam: 0.12mm

11) Move the M slider ⑯ fully to the left.
12) Set up the EJECT mode.
13) Perform Steps 7), 8) and 9) of 2. Remounting in 2-3-14.
14) Set up the LOADING/UNLOADING mode.
15) Insert the horizontal spindle of the driving arm complete assembly ⑦ in the groove of the upper & lower selection arm (B) ㉔ , insert the lug of the RVS arm ⑫ in the dented part of the driving arm complete assembly ⑦ , and tighten two screws ⑥ .
16) Remount the T main brake assembly ⑤ and S main brake assembly ④ , refit two each stop washers ③ , and refit the spring ② . (See Fig. 2-43.)
17) Remount the tension regulator load arm assembly as instructed in 2) of 2. Remounting in 2-3-11.
18) Perform Steps 11) to 16) of 2. Remounting in 2-3-14.
19) Remount the loading ring assembly as instructed in 2-3-7.
20) Remount the tension regulator band assembly as instructed in 2-3-5.
21) Remount the tension regulator arm assembly as instructed in 2-3-4.
22) Remount the pinch press arm assembly as instructed in 2-3-3.
23) Open the MC-4 Board referring to section 2 and remount the timing belt ① .

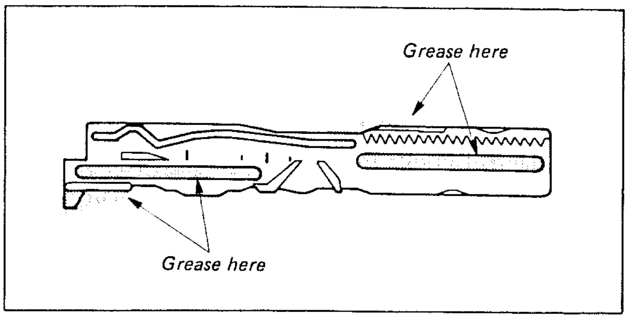


Fig. 2-44

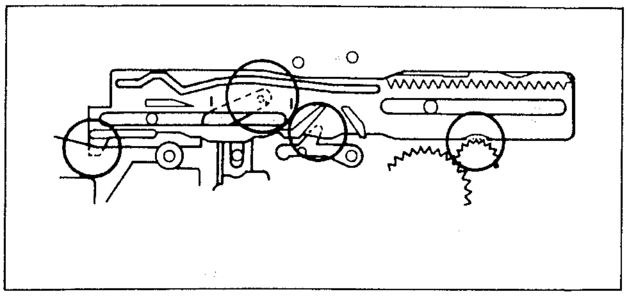


Fig. 2-45

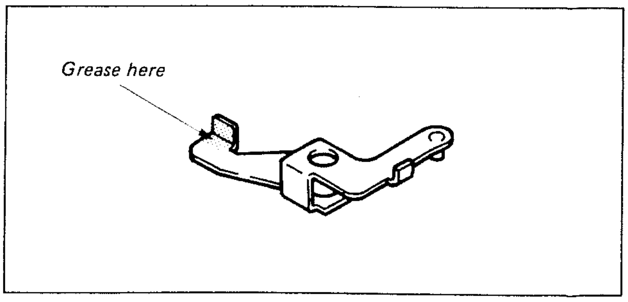


Fig. 2-46

2-3-16. Capstan Motor

1. Removal

1) Remove the tape stopper as instructed in 1) of 1. Removal in 2-3-10.
2) Remove the loading ring assembly as instructed in 2-3-7.
3) Open the MC-8 Board as instructed in 2. Removal in 2-10 and turn the set upside down.
4) Remove the screw ❶ and the wire holder ❷ .
5) Remove the timing belt ❸ .

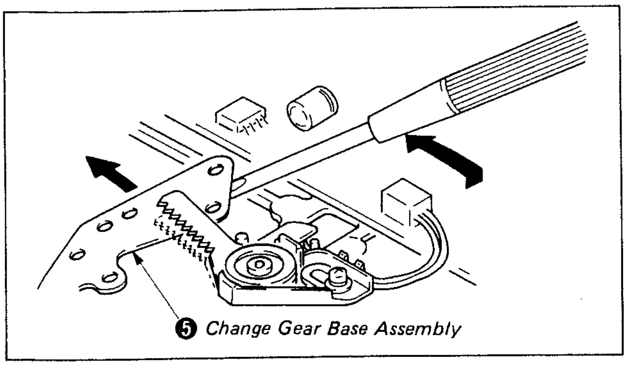

❺ Change Gear Base Assembly

Fig. 2-47

6) Remove the screw ❹ and the change gear base assembly ❺ using a screwdriver. (See Fig. 2-47 and 48.)
7) Disconnect the connectors ❻ and ❼ .
8) Remove two screws ❽ and capstan motor (M902) ❾ as shown by the arrow Ⓐ . (See Fig. 2-48.)

2. Remounting

1) Remount the capstan motor (M902) ❾ and tighten two screws ❽ .
2) Reconnect the connectors ❻ and ❼ .
3) Remount the change gear base assembly ❺ and tighten the screw ❹ .
4) Re-place the timing belt ❸ .
5) Remount the wire holder ❷ and tighten the screw ❶ . (See Fig. 2-48.)
6) Re-place the set in its forward position.
7) Remount the loading ring assembly as instructed in 2-3-7.
8) Remount the tape stopper as instructed in 5) of 2.

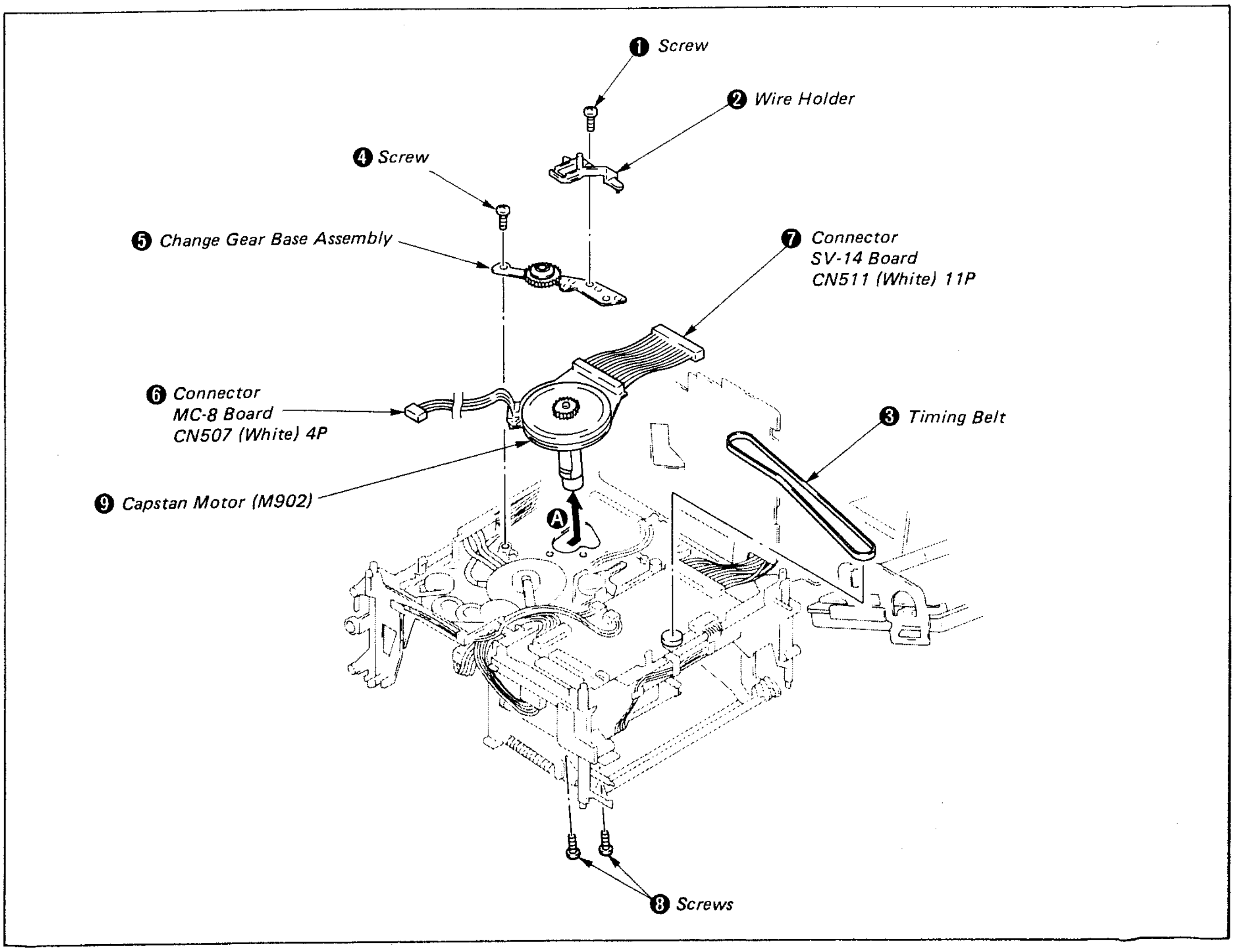

❶ Screw
❷ Wire Holder
❹ Screw
❺ Change Gear Base Assembly
❼ Connector
SV-14 Board
CN511 (White) 11P
❻ Connector
MC-8 Board
CN507 (White) 4P
❸ Timing Belt
❾ Capstan Motor (M902)
Ⓐ
❽ Screws

Fig. 2-48

2-3-18. Rotary Upper Drum Replacement

1. Removal

- The rotary upper drum is marked with a colour dot as shown in Fig. 2-49.
- Remove the rotary upper drum after recording in advance if recording is possible.

The color combination of rotary upper drum for replacement

New Part		Former Part
Part No.	Colour Dot	Colour Dot
A-7049-005-A	Blue or Red	Blue or Red
A-7049-012-A	Black or Green	Black or Green

1) Remove two hexagon socket screws (2 x 2.7) ❶ and dismount the dynamic damper ❷ . (See Fig. 2-49.)
2) Suction solder at all of the soldered eight positions Ⓐ . Check that the printed wiring board and pins jutting out from below freely moove using tweezers, or other tool. (See Fig. 2-49.)
3) Remove the two hexagon socket screw (2 x 5) ❸ . (See Fig. 2-49.)
4) Remount the dismounting Jig Ⓑ by the accessory screws ❹ utilizing the screw holes in which the dynamic damper was mounted.
   Drive the hexagon socket screw ❺ into the jig and pulled up the rotary upper drum ❻ . (See Fig. 2-50.)

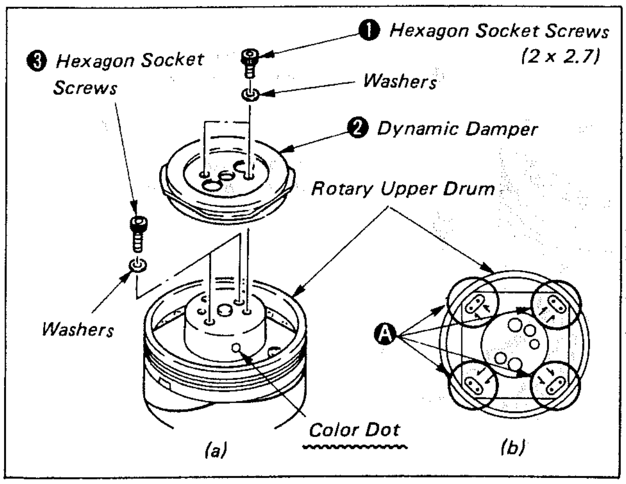

❶ Hexagon Socket Screws (2 x 2.7)
❸ Hexagon Socket Screws
Washers
❷ Dynamic Damper
Rotary Upper Drum
Washers
Ⓐ
Color Dot
(a)
(b)

Fig. 2-49

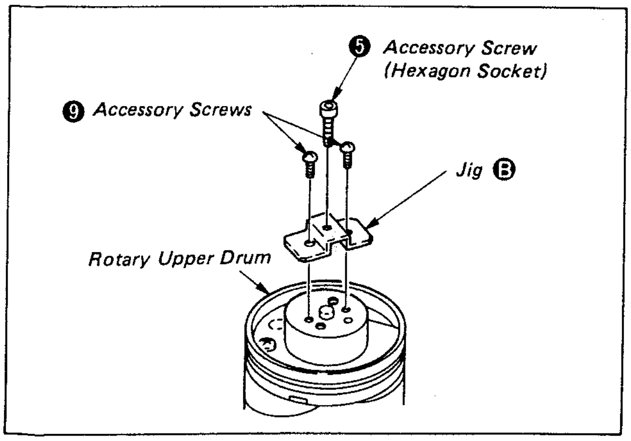

❺ Accessory Screw (Hexagon Socket)
❾ Accessory Screws
Jig Ⓑ
Rotary Upper Drum

Fig. 2-50

2. Remounting

1) Carefully clean the flange surfaces and planes of the rotary upper drum and visually check that no blemishes or flaws are left.
2) Insert Jig Ⓒ in the positioning hole Ⓓ so that the holes of the rotary upper drum ❻ and flange coincide. Lightly insert the rotary upper drum in the drum shaft while aligning their positions. (See Fig. 2-51.)(Check that pins are projecting above the holes on the printed circuit board of the rotary upper drum. When the pins are caught, correct using tweezers, etc.)
3) Remove Jig Ⓒ , lightly push the rotary upper drum by hands. If the rotary upper drum does not go in to the bottom, alternately tighten the two hexagon socket screws (2 x 5) ❸ by hand and temporarily fix them. (See Fig. 2-49 and 2-52.)
4) Reinsert the Jig Ⓒ in the positioning hole and check that the jig can be inserted smoothly. (When the jig cannot be inserted, loosen the two hexagon socket screws (2 x 5) ❸ and slide it inserting a clock screw-driver in the hole.)
5) Tighten the two hexagon socket screws (2 x 5) ❸ .

Note: Do not tighten too strongly.

6) Solder the eight positions Ⓐ . (See Fig. 2-49.)

Note: Be careful not to flow solder below the printed wiring board.

7) Tighten the two hexagon socket screws (2 x 2.7) ❶ reversing the screw removal procedure and remount the dynamic damper ❷ . (See Fig. 2-49.)

Note: Do not tighten too strongly.
When remounting, do not mix the hexagon socket screws (2 x 2.7) ❶ and hexagon socket screws (2 x 5) ❸ .

Note: Be sure to adjust the tape path as instructed in 2-4 after remounting.

Note: Replay the recorded tape after adjusting the tape path and before exchanging the rotary upper drum and check that the tape replays properly.

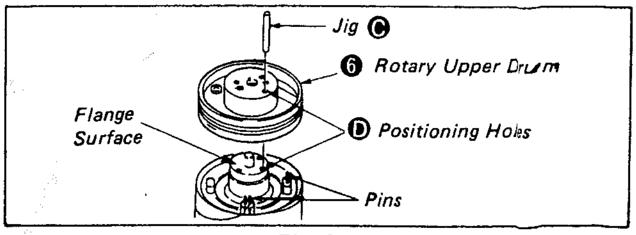

Jig Ⓒ
❻ Rotary Upper Drum
Flange Surface
Ⓓ Positioning Holes
Pins

Fig. 2-51

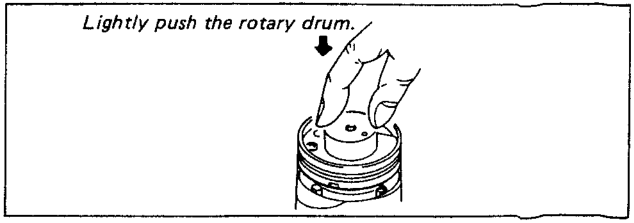

Lightly push the rotary drum.

Fig. 2-52

2-3-19. Drum Assembly Replacement

1. Removal

1) Open the MC-8 Board as instructed in 2. Removal.
2) Remove the screw ❶ and head lead shield plate ❷ .
3) Remove the screw ❸ and shaft ground terminal ❹ . (See Fig. 2-53.)
4) Disconnect six connectors ❺ .
5) Remove two screws ❻ .
6) Remove the drum assembly ❼ . (See Fig. 2-54.)

2. Remounting

1) Remount the drum assembly ❼ and tighten two screws ❻ .
2) Connect six connectors ❺ . (See Fig. 2-54.)
3) Remount the shaft ground terminal ❹ and tighten the screw ❸ .
4) Remount the head lead shield plate ❷ and tighten the screw ❶ . (See Fig. 2-53.)

Note: Be sure to adjust the tape path as instructed in 2-4 after remounting.

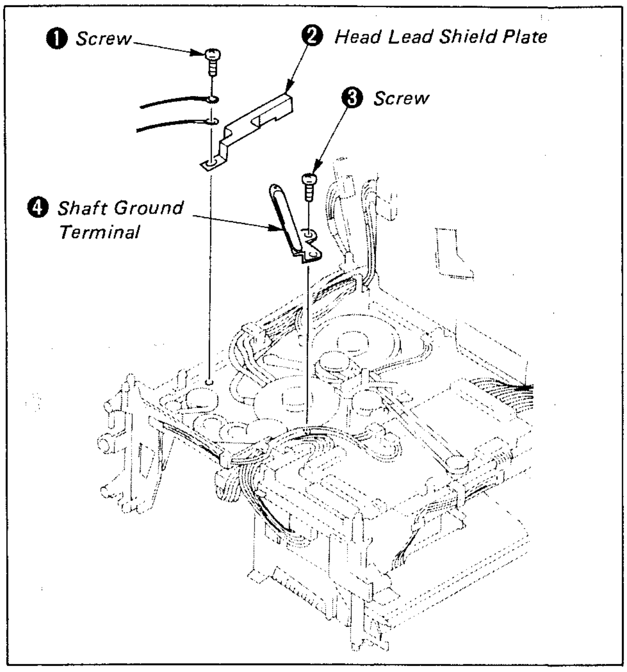

❶ Screw
❷ Head Lead Shield Plate
❸ Screw
❹ Shaft Ground Terminal

Fig. 2-53

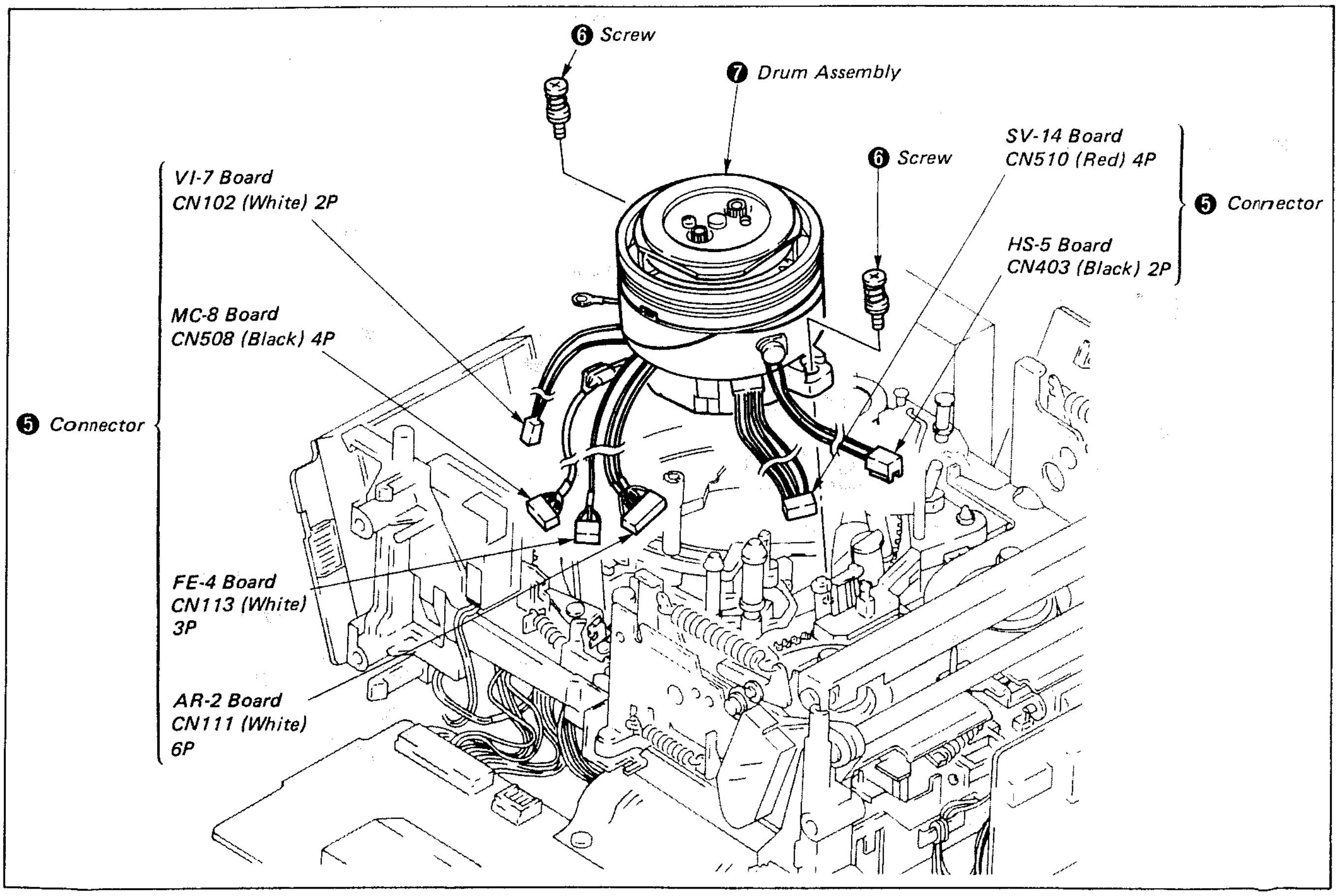

❻ Screw
❼ Drum Assembly
❻ Screw
SV-14 Board CN510 (Red) 4P
HS-5 Board CN403 (Black) 2P
❺ Connector
VI-7 Board CN102 (White) 2P
MC-8 Board CN508 (Black) 4P
❺ Connector
FE-4 Board CN113 (White) 3P
AR-2 Board CN111 (White) 6P

Fig. 2-54

2-3-20. Adjustment After Replacing No. 3 and 4 Guides

Run the tape on the upper flanges for both No. 3 and 4 guides after replacing them. (See Fig. 2-90.)

2-3-21. No. 5 Guide Assembly

1. Removal

1) Remove the tape stopper as instructed in 1) of 1. Removal in 2-3-10.
2) Remove three screws ❶ and No. 5 guide assembly.
3) Remove the guide nut ❷ , the spring ❸ and the shaft 4 . (See Fig. 2-55.)

2. Remounting

1) Reinsert the spring ❸ in the shaft ❹ , reengage the dent and bump in the lower parts, and tighten the guide nut ❷ .
2) Remount the No. 5 guide assembly and tighten three screws ❶ . (See Fig. 2-55.)
3) Remount the tape stopper as instructed in 5) of 2. Remounting in 2-3-10.

Note: Be sure to adjust the tape path as instructed in 2-4 after remounting.

2-3-22. FWD Back Tension Adjustment

Note: Perform tape forward running for at least three minutes before performing adjustment.

1) Set up the LOADING END and FWD modes.
2) Loosen the screw ❷ of the band adjustment plate ❶ , adjust the slit ❸ and pin ❹ of the tension regulator arm assembly to be in the position shown by the arrow Ⓐ in the Fig. 2-56, then tighten the screw ❷ .
3) Place the reel (Ref. No. J-7) ❻ to measure tensions on the S reel table ❺ and run a tape along No. 1, 2 and 3 guides and the drum.

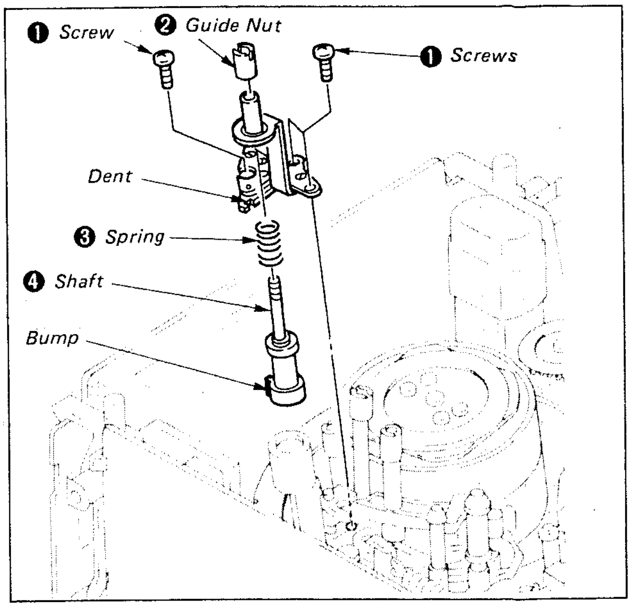

❶ Screw
❷ Guide Nut
❶ Screws
Dent
❸ Spring
❹ Shaft
Bump

Fig. 2-55

4) Pull the dial tension gauge (Ref. No. J-6) ❼ in the arrow Ⓑ direction and re-place the spring ❾ on the tension regulator spring hook assembly ❽ as mentioned below so that the value becomes 13.0 ±1g. (See Fig. 2-56.)

Larger than standard . . . . .Arrow Ⓒ direction
Smaller than standard. . . . . Arrow Ⓓ direction

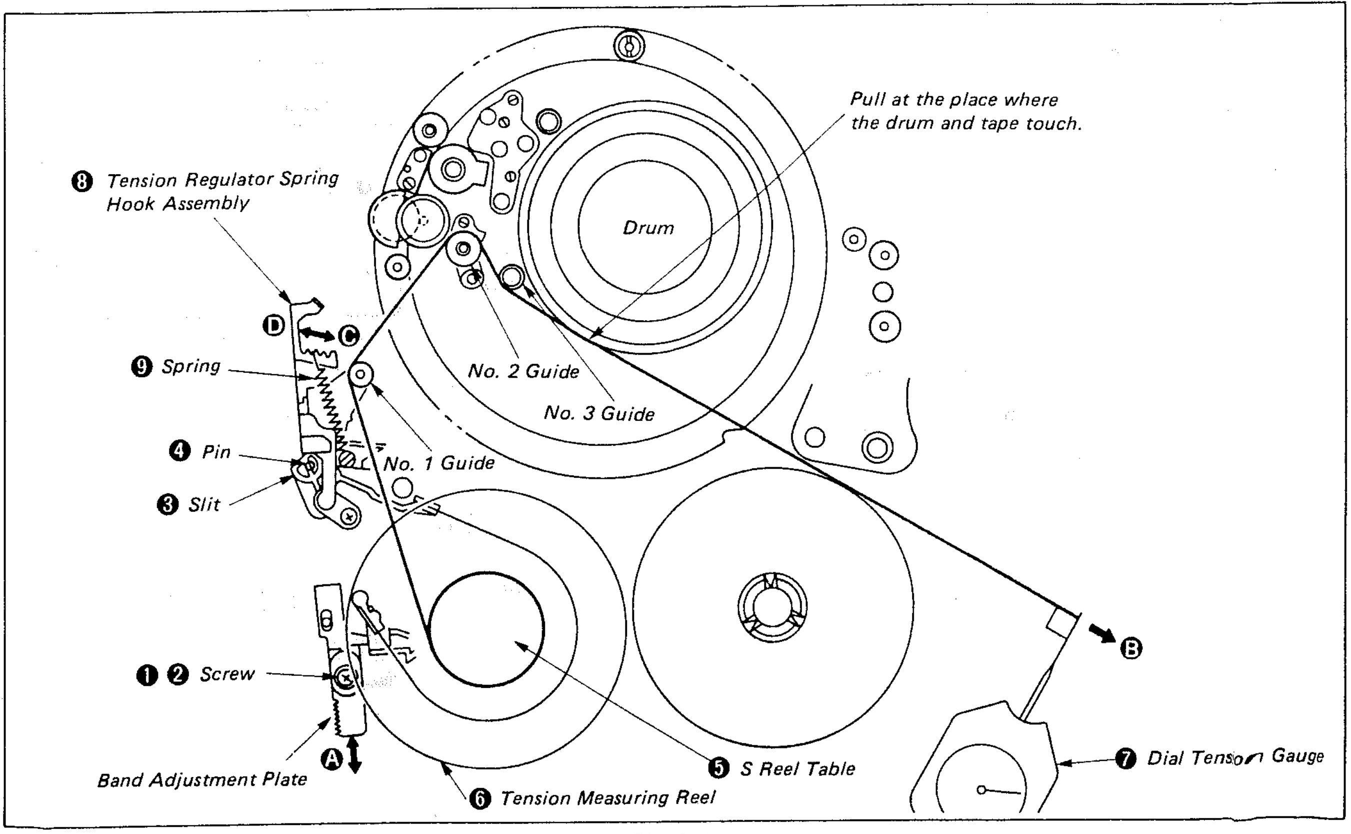

Pull at the place where the drum and tape touch.
❽ Tension Regulator Spring Hook Assembly
Drum
Ⓓ
Ⓒ
❾ Spring
No. 2 Guide
No. 3 Guide
❹ Pin
No. 1 Guide
❸ Slit
Ⓑ
❶ ❷ Screw
Ⓐ
Band Adjustment Plate
❺ S Reel Table
❻ Tension Measuring Reel
❼ Dial Tension Gauge

Fig. 2-56

2-3-23. Checking and Adjustment of Timing Belt Tension

1) Remove the timing belt. (Refer to 1) of 1. Removal in 2-3-15.)
2) Cover the LED photodetector section (HS-5 Board) for tape end detection with a vinyl tape, and load.
3) Short TP603 and TP604 on the SK-8 Board. (See Fig. 2-57.)
4) Disengage the pinch press arm side (round hook side) of the tension spring hooked on the pinch press arm assembly. (See Fig. 2-58.)
5) Hold the safety pin of the RECOG switch (rec proof side) and tape it. press the REC button to set up the REC mode. (See Fig. 2-59.)
6) Measure the voltage (Vo) between CAP I_1 and CAP I_2 on the SV-14 Board using an analog tester. (No-load state) (See Fig. 2-60.)
7) Remount the timing belt. (Refer to 4) of 2. Remounting in 2-3-16.
8) Remove the driving gear (B) assembly as instructed in 3) of 1. Removal in 2-3-14.
9) Measure the voltage (Vx) between CAP I_1 and CAP I_2 as in 6) after setting up the REC mode as mentioned in 5). (When adjusting the belt tension.)
10) Check that the voltage (Vx) during tension adjustment is 22 to 44mV higher than the voltage (Vo) in a no-load state. Adjust as follows if the voltage is not as required.

Adjustment Method:

- i) Loosen the screw ❶ , slide the idler assembly as shown by the arrow Ⓐ , and fix it by tightening the screw ❶ . (See Fig. 2-61.)
- ii) Recheck after performing Step 9).
- iii) Repeat i) and ii) until the standard is satisfied.

11) Remove the short between TP603 and TP604 on the SK-8 Board.
12) Remount the driving gear (B) assembly and the tension spring of the pinch press arm assembly.

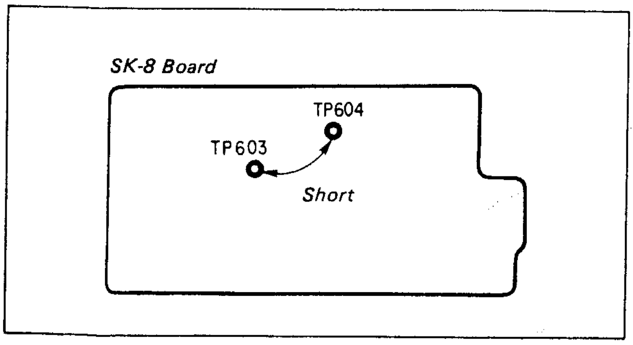


Fig. 2-57

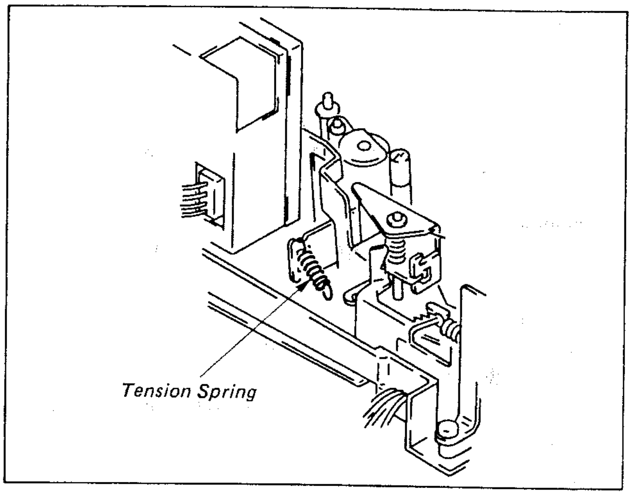


Fig. 2-58

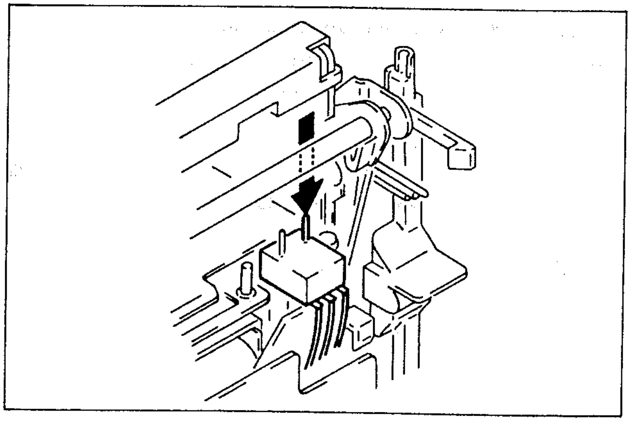


Fig. 2-59

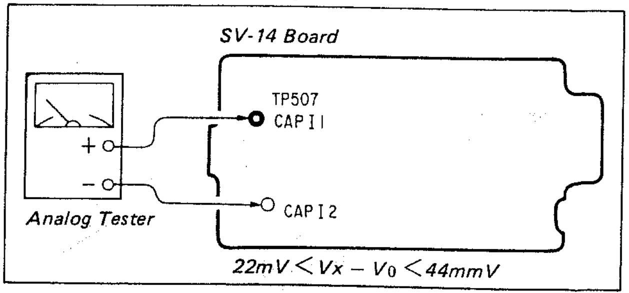


Fig. 2-60

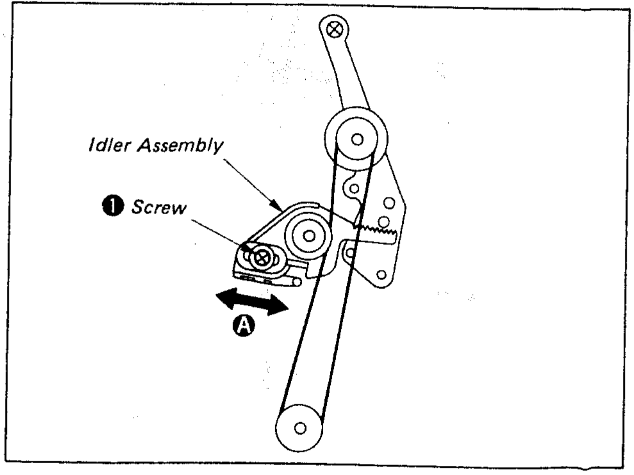


Fig. 2-61

2-3-24. Checking S and T Main Brake Torques

1) Open the control panel as instructed in section 2.
2) Remove the cassette compartment assembly as instructed in 2-1-1.

1. S main brake torque

1) Set up the FF/REW mode.
2) place the tension measuring reel (Ref. No. J-8) on the S reel table.
3) Pull the dial tension gauge (Ref. No. J-6) toward the arrow and check that the value satisfies the required value. (See Fig. 2-62 and 63.)

2. T main brake torque

1) Set up the FF/REW mode.
2) Place the tension measuring reel (Ref. No. J-8) on the T reel table.
3) Pull the dial tension gauge (Ref. No. J-6) toward the arrow and check that the value satisfies the required value. (See Fig. 2-64 and 65.)

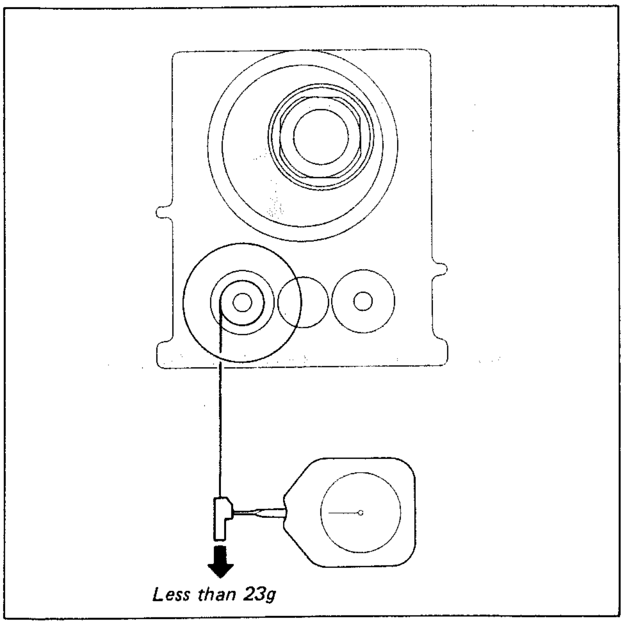


Fig. 2-62

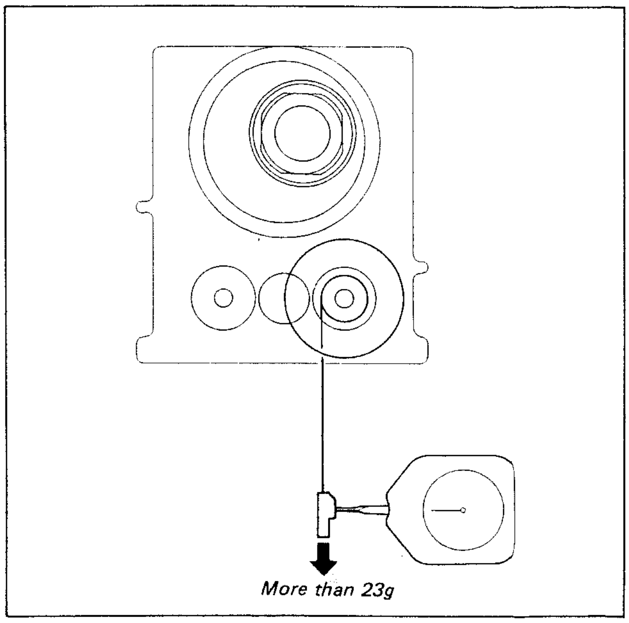


Fig. 2-64

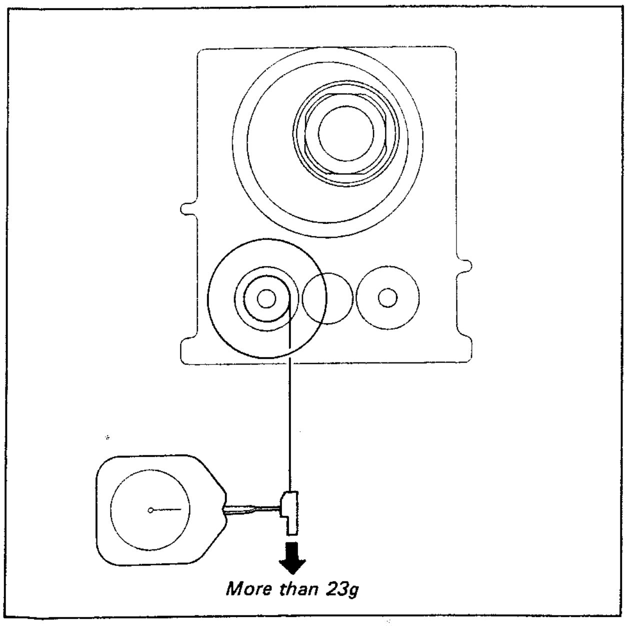


Fig. 2-63

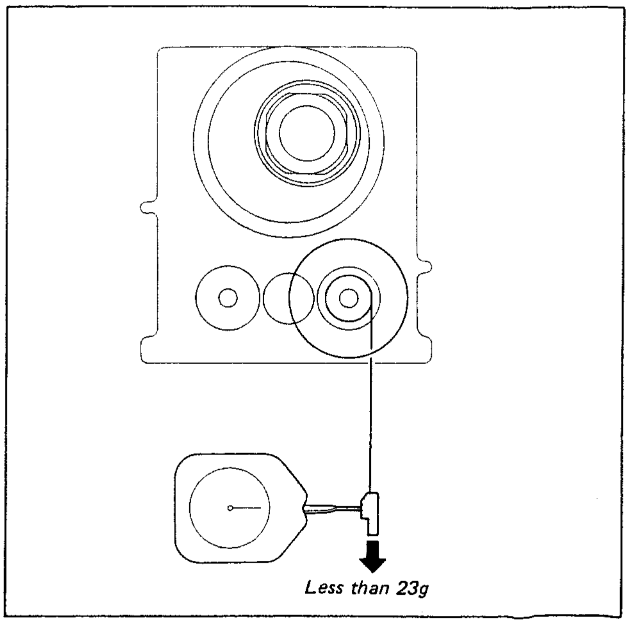


Fig. 2-65

2-3-25. Checking S and T Saft Brake Torques

1) Open the control panel as instructed in section 2.
2) Remove the cassette compartment assembly as instructed in 2-1-1.

1. S soft brake torque

1) Setup the FF/REW mode.
2) Place the tension measuring reel (Ref. No. J-8) on the S reel table.
3) Release the S main brake with a finger.
4) Pull the dial tension gauge (Ref. No. J-6) toward the arrow and check that the value satisfies the required value. (See Fig. 2-66.)

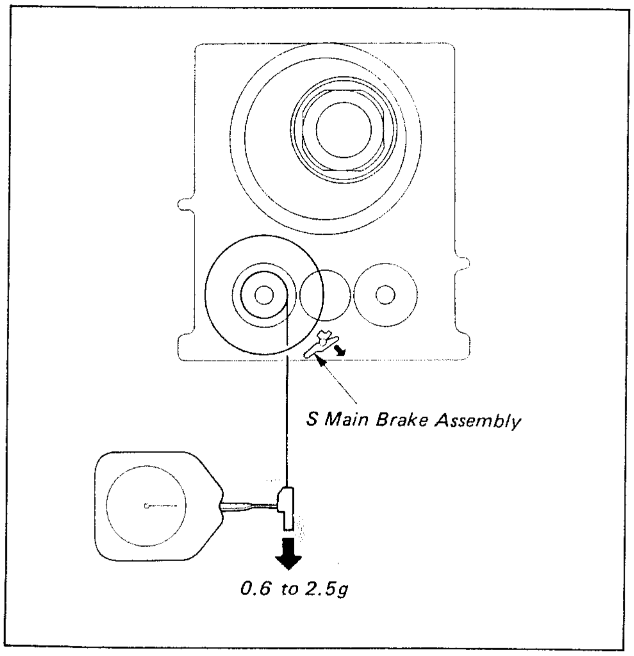


Fig. 2-66

2. T soft brake torque

1) Set up the REV mode.
2) Place the tension measuring reel (Ref. No. J-8) on the T reel table.
3) Release the T main brake with a finger.
4) Pull the dial tension gauge (Ref. No. J-6) toward the arrow and check that the value satisfied the required value. (See Fig. 2-67.)

Note: In the REV mode, both the T soft brake and REW brake are engaged.

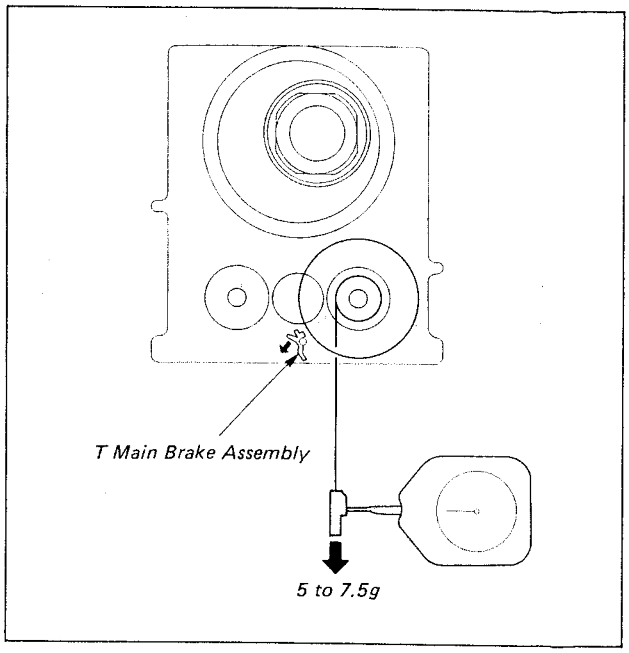


Fig. 2-67

2-3-26. Checking REV and REW Brake Torques

1) Open the control panel as instructed in section 2.
2) Remove the cassette compartment assembly as instructed in 2-1-1.

1. REV brake torque

1) Set up the REV mode.
2) Place the tension measuring reel (Ref. No. J-8) on the S reel table.
3) Release the S main brake assembly with a finger.
4) Pull the dial tension gauge (Ref. No. J-6) toward the arrow and check that the value satisfies the required value. (See Fig. 2-68.)

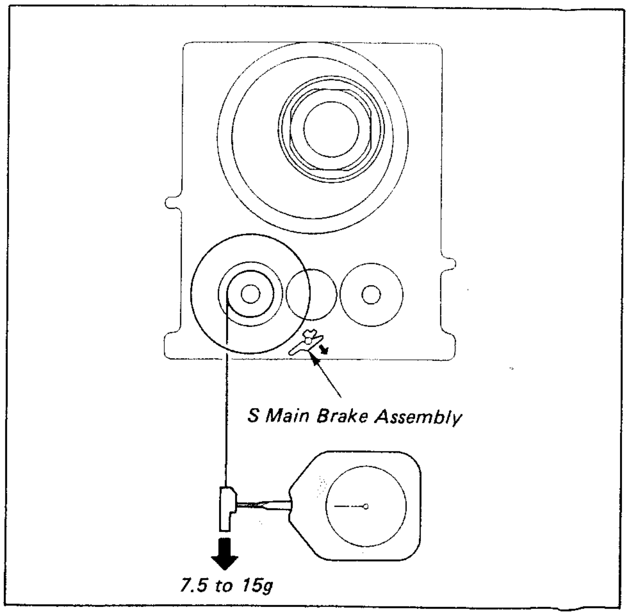


Fig. 2-68

2. REW brake torque

1) Set up the FF/REW mode.
2) Place the tension measuring reel (Ref. No. J-8) on the T reel table.
3) Release the T main brake with a finger.
4) Pull the dial tension gauge (Ref. No. J-6) toward the arrow and check that the value satisfies the required value. (See Fig. 2-69.)

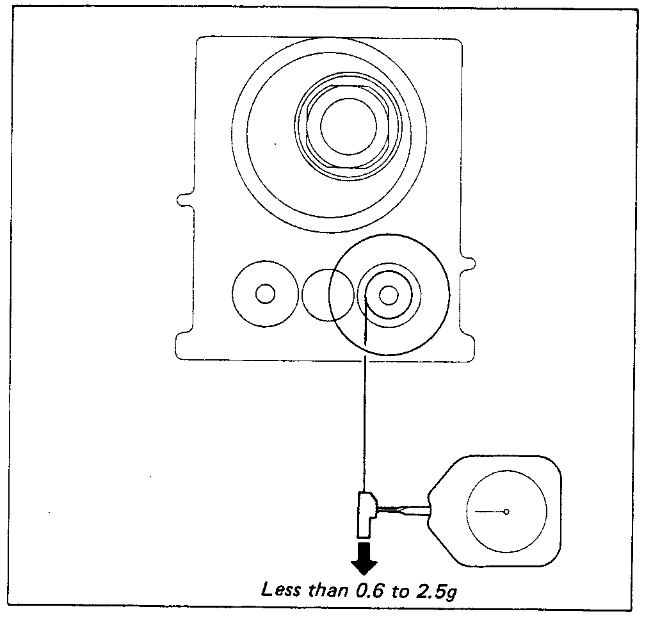
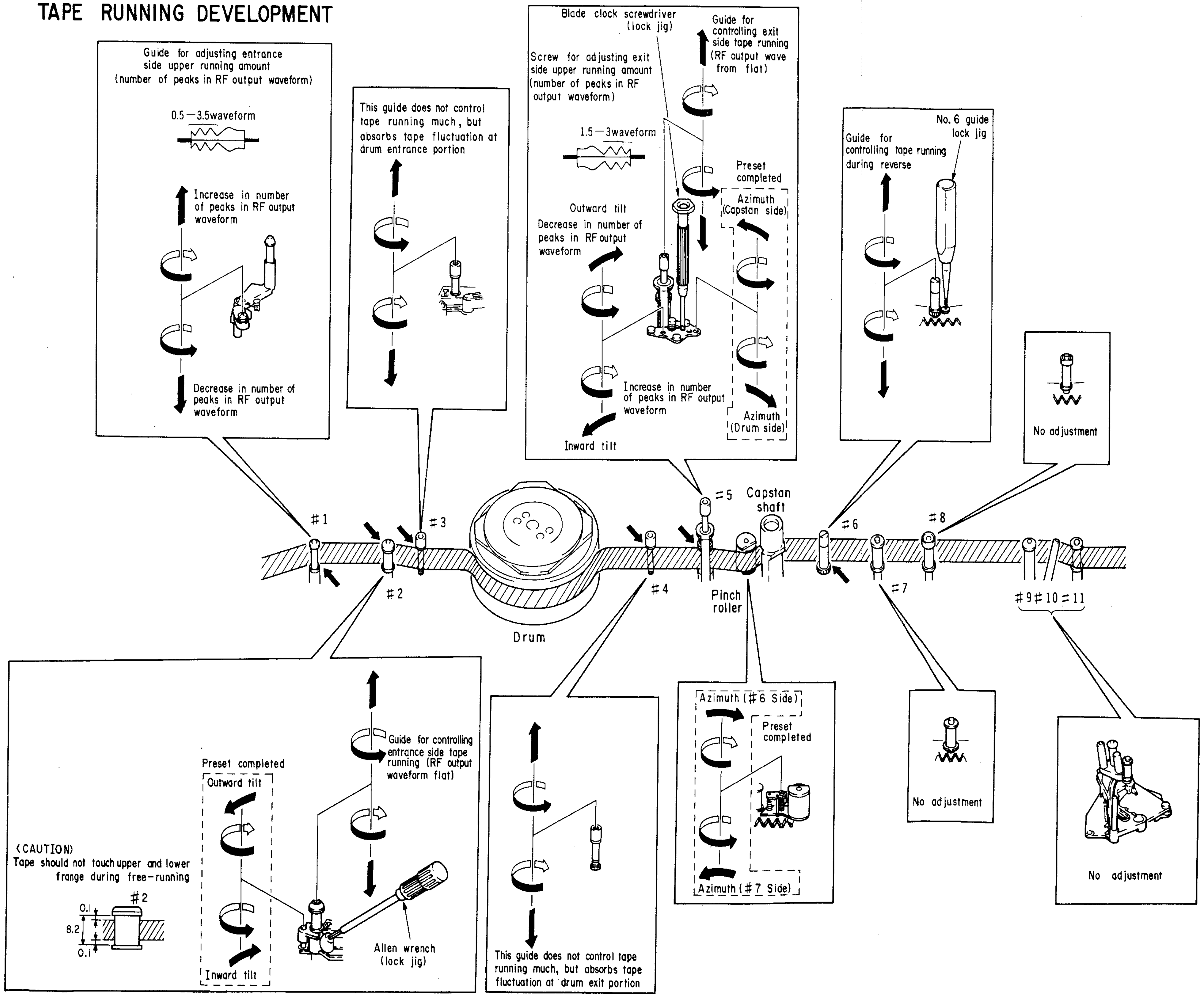


Fig. 2-69

2-3-27. Checking by FWD and RVS Take-Up Torque Cassette

1) Set the FWD and RVS take-up torque cassette (Ref. No. J-12).
2) Set up the PLAY BACK mode and check that the torque value on the T reel table side is 9.5 to 15.5g-cm.
3) Set up the PLAY BACK mode and check that the torque value on the S reel table side immediately after pressing the REW button is 17 to 23g-cm.
4) Replace the reel tables if the foregoing values are not satisfied.

TAPE RUNNING DEVELOPMENT


Guide for adjusting entrance side upper running amount (number of peaks in RF output waveform)
0.5—3.5waveform
Increase in number of peaks in RF output waveform
Decrease in number of peaks in RF output waveform
This guide does not control tape running much, but absorbs tape fluctuation at drum entrance portion
Blade clock screwdriver (lock jig)
Screw for adjusting exit side upper running amount (number of peaks in RF output waveform)
1.5—3waveform
Outward tilt
Decrease in number of peaks in RF output waveform
Increase in number of peaks in RF output waveform
Inward tilt
Guide for controlling exit side tape running (RF output wave from flat)
Preset completed
Azimuth (Capstan side)
Azimuth (Drum side)
No. 6 guide lock jig
Guide for controlling tape running during reverse
No adjustment
#1
#2
#3
#4
#5
Capstan shaft
#6
#7
#8
#9 #10 #11
Drum
Pinch roller
Guide for controlling entrance side tape running (RF output waveform flat)
Preset completed
Outward tilt
Inward tilt
Allen wrench (lock jig)
〈CAUTION〉
Tape should not touch upper and lower frange during free-running
#2
0.1
8.2
0.1
This guide does not control tape running much, but absorbs tape fluctuation at drum exit portion
Azimuth (#6 Side)
Preset completed
Azimuth (#7 Side)
No adjustment
No adjustment

2-4. TAPE PATH ADJUSTMENT

- **Make tape path adjustment after checking that electrical adjustment is made.**

2-4-1. Preparation for Adjustment

1) Clean the parts on which the tape runs (tape guide, drum, capstan spindle and pinch roller).
2) Connect an oscilloscope as follows:
   1CH: Pin ③ of CN112 (AR-2 Board): CH-2 output
   2CH: Pin ② of CN112 (AR-2 Board): External trigger
   (See Fig. 2-70.)

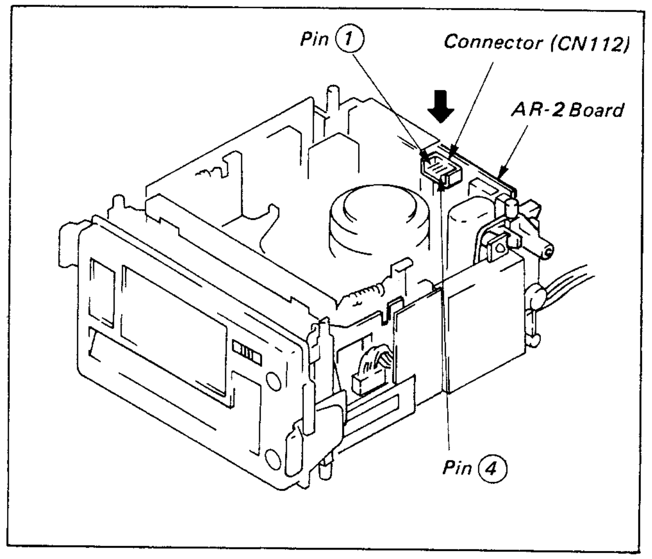

Pin ①
Connector (CN112)
AR-2 Board
Pin ④

Fig. 2-70

3) Replay the tracking alignment tape (WR5-1C) and check that the RF waveforms are flat (Fig. 2-71 ⓐ) on the inlet and outlet sides. If not, adjust as follows.

- If RF waveform on inlet side is not flat. (Fig. 2-71 ⓑ). . . Adjust as instructed in 2-4-2 Inlet side adjustment.
- If RF waveform on outlet side is not flat. (See Fig. 2-71 ⓒ) . . . Adjust as instructed in 2-4-3 Outlet side adjustment.

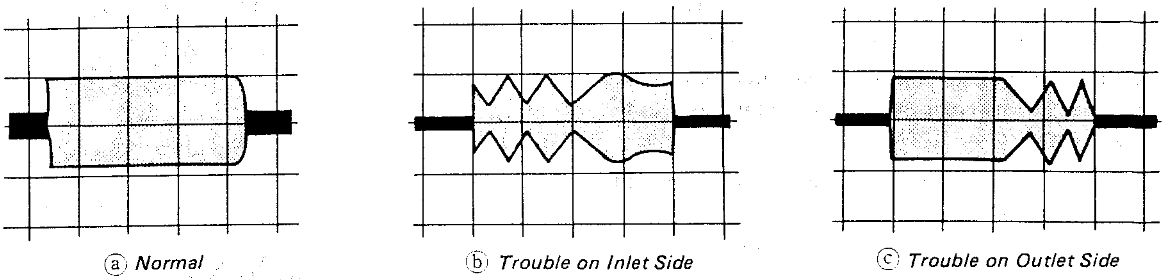

ⓐ Normal ⓑ Trouble on Inlet Side ⓒ Trouble on Outlet Side

Fig. 2-71

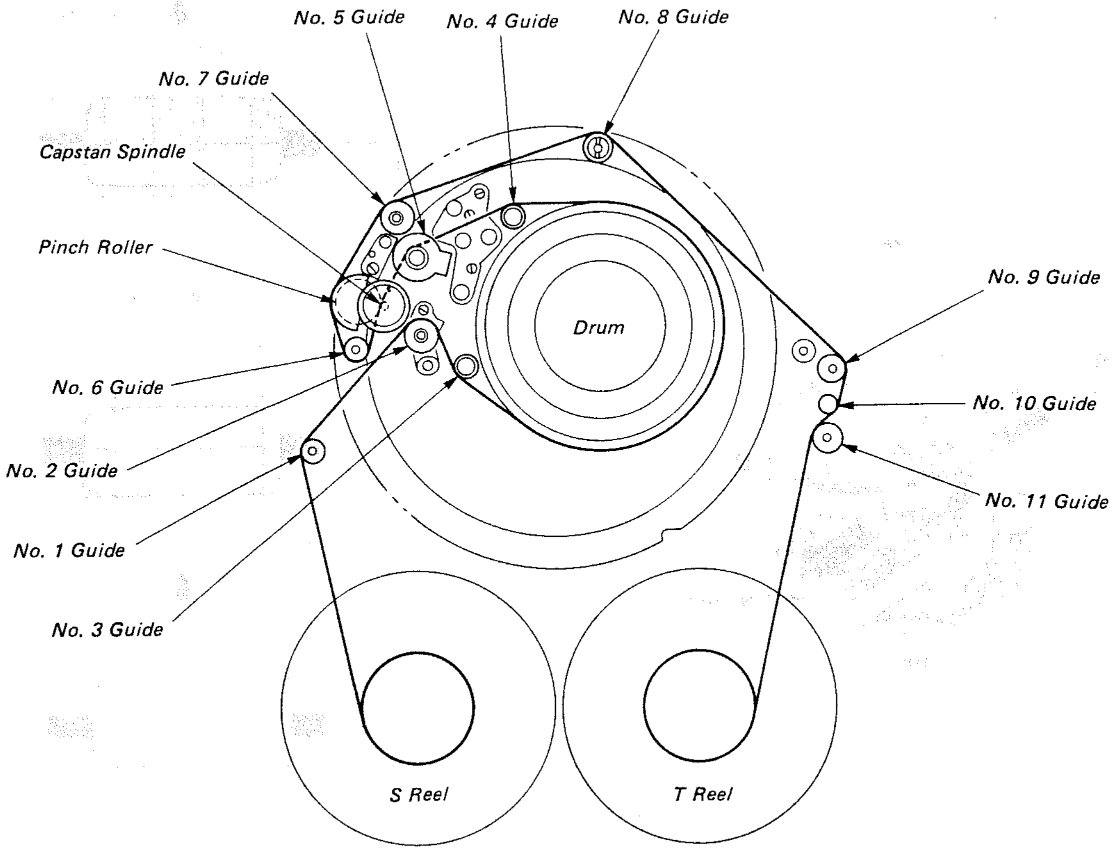

No. 5 Guide
No. 4 Guide
No. 8 Guide
No. 7 Guide
Capstan Spindle
Pinch Roller
No. 9 Guide
Drum
No. 6 Guide
No. 10 Guide
No. 2 Guide
No. 11 Guide
No. 1 Guide
No. 3 Guide
S Reel
T Reel

Fig. 2-72 Tape Guide Layout

2-4-2. Inlet Side Adjustment

1) Replay the tracking alignment tape, loose No. 2 guide lock screw ❶ , rotate No. 2 and 3 guides counterclockwise, and free the tape run on the inlet side. (See Fig. 2-73.)

Note: The space between the top and bottom flanges of No. 2 guide is narrow. Check that the tape is contacting neither top nor bottom flanges this time. The tape contacts the bottom flange and the RF waveform on the inlet side will have more than 3.5 ridges if No. 2 guide is too loose.

2) Check that the RF waveform on the inlet side has 0.5 to 3.5 ridges in this condition. If not, adjust as follows. (See Fig. 2-7-4.)

Note: Do not touch the No. 2 guide gate screw ❷ since it has been preset at the factory.
If off standard, adjust the height adjustment screw of the No. 1 guide (tension regulator assembly) by turning it clockwise 90° at a time. (See Fig. 2-75.)

3) Slowly rotate No. 2 guide clockwise to make the inlet side waveform nearly flat. (See Fig. 2-76.)

Note: Do not rotate No. 2 guide excessively.

4) Rotate No. 3 guide clockwise to make the inlet side waveform completely flat, then rotate clockwise slightly (approximately 15°). (See Fig. 2-77.)
5) Check the tape curl of No. 3 guide flange. If tape is curled, rotate No. 2 guide clockwise little by little until the curling is eliminated.
6) Tighten No. 2 lock screw ❶ . (See Fig. 2-73.)

Note: Check the adjustment as mentioned in 2-4-4.

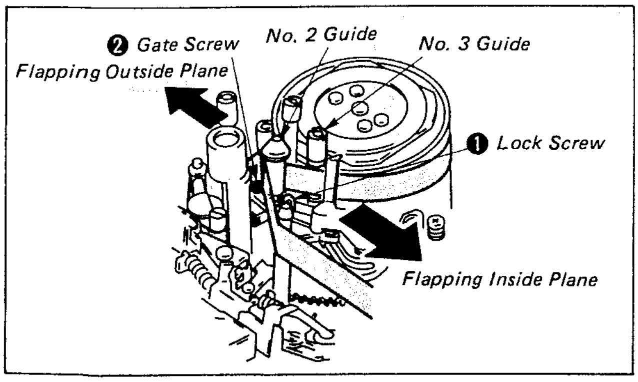

❷ Gate Screw
Flapping Outside Plane
No. 2 Guide
No. 3 Guide
❶ Lock Screw
Flapping Inside Plane

Fig. 2-73

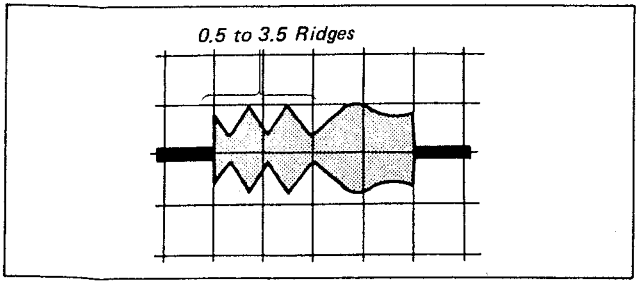

0.5 to 3.5 Ridges

Fig. 2-74

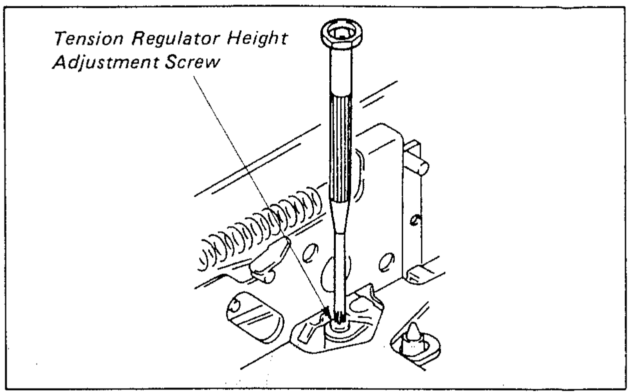

Tension Regulator Height Adjustment Screw

Fig. 2-75

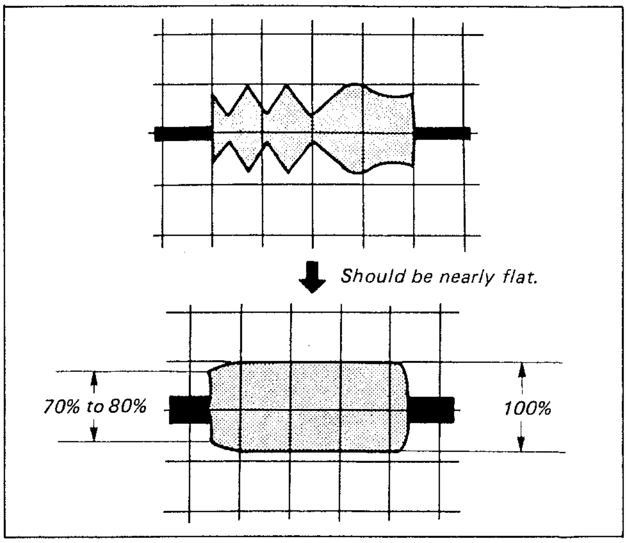

Should be nearly flat.
70% to 80%
100%

Fig. 2-76

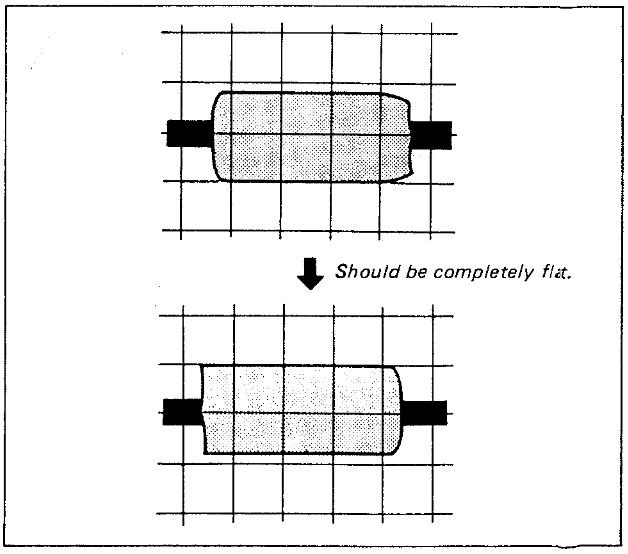

Should be completely flat.

Fig. 2-77

2-4-3. Outlet Side Adjustment

- Start this adjustment by removing the tape stopper as instructed in 1) of 1. Removal in 2-3-10.

1) Play back the tracking alignment tape, rotate No. 4 guide counterclockwise and No. 5 guide clockwise, respectively, then free the tape running on the outlet side. (See Fig. 2-78.)

Note: ● A screw lock agent sticking No. 5 guide nut may prevent the nut from rotating. Rotate the guide after immersing alcohol in the nut thread and dissolving the screw lock agent.
● Check that the tape is not contacting the top and bottom flanges of No. 5 guide during free tape running.

2) Check that the RF waveform on the outlet side has 1.5 to 3 ridges. If not, readjust as follows. (See Fig. 2-79.)

If off standard

i) Rotate the lock screw ❶ counterclockwise to loosen.
ii) Slowly rotate the gate screw ❷ by 45° and wait until the RF waveform changes.
iii) Rotate the lock screw ❶ clockwise to tighten. (See Fig. 2-78.)

Note: ● The waveform changes if the lock screw is tightened too tightly. Tighten moderately.
● Never rotate the azimuth screw of No. 5 guide.

3) Rotate No. 5 guide counterclockwise to make the RF waveform on the outlet side nearly flat. (See Fig. 2-80.)

Note: The waveform reaction is slow to nut rotation. Rotate the nut after the waveform variations are stabilized.

4) Rotate No. 4 guide clockwise to make the RF waveform on the outlet side completely flat and slightly rotate clockwise (approximately 15°) from this condition. (See Fig. 2-81.)

5) Check tape curling of No. 4 guide flange. Rotate No. 5 guide nut counterclockwise little by little until curling is eliminated if the tape is curled.

Note: Be sure to check as mentioned in 2-4-4 after making the adjustment.

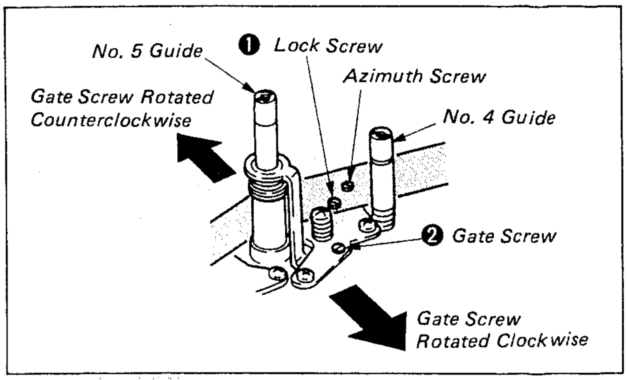

No. 5 Guide
❶ Lock Screw
Azimuth Screw
Gate Screw Rotated Counterclockwise
No. 4 Guide
❷ Gate Screw
Gate Screw Rotated Clockwise

Fig. 2-78

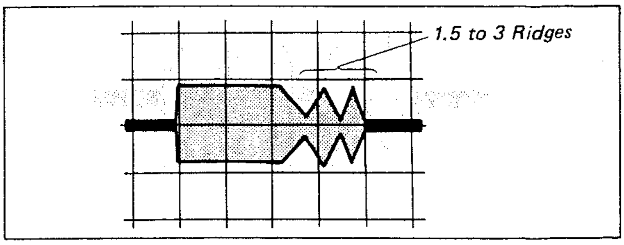

1.5 to 3 Ridges

Fig. 2-79

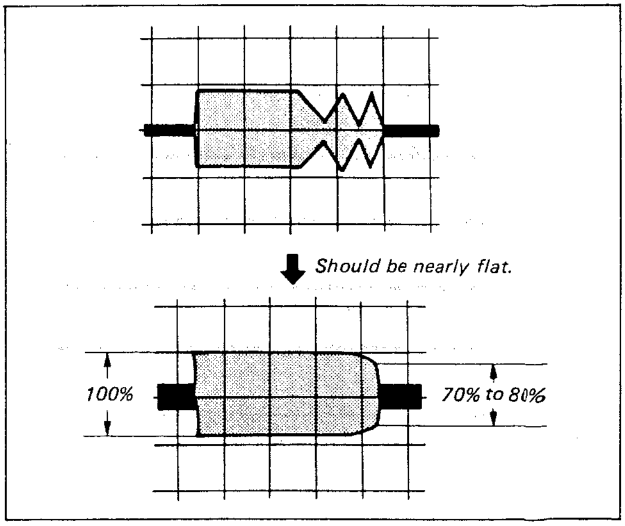

Should be nearly flat.
100%
70% to 80%

Fig. 2-80

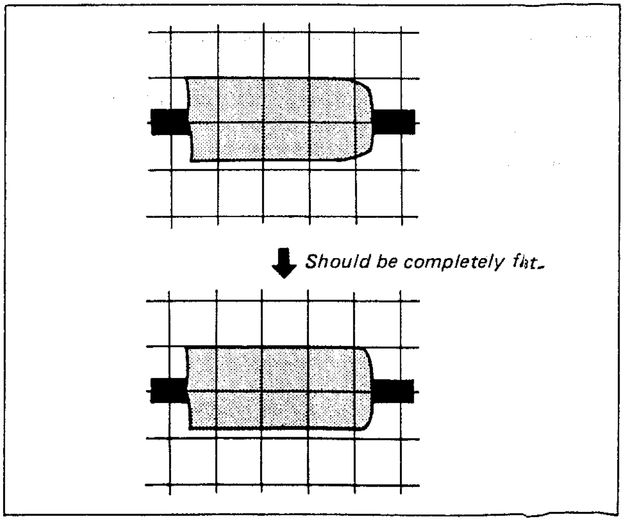

Should be completely flat.

Fig. 2-81

2-4-4. Checking After Adjustment

1. Tracking check

1) Record TV signals, play back recorded signals, and check that quality of both pictures and sounds is satisfactory.
2) Play back the tracking alignment tape and check that RF waveforms do not have large variations.
3) Set up the REV mode and check that the waveform noise pitches are uniform. If not, adjust as follows. (See Fig. 2-82.)

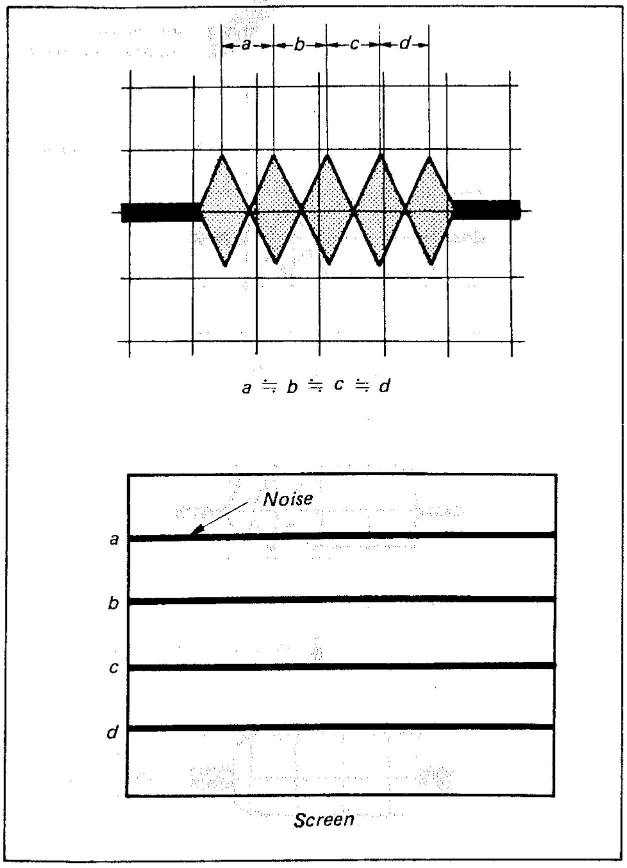


Fig. 2-82

[Narrow noise pitch on inlet side (upper screen)]
(See Fig. 2-83.)

Check that the RF waveforms are flat in the PLAYBACK mode.

Waveform is not flat:

Adjust the heights of No. 2 and 3 guides as in 2-4-2 Inlet side adjustment.

Waveform is flat:

Rotate No. 1 guide (tension regulator height adjusting screw) and No. 2 guide gate screw 90° counterclockwise to recheck. (See Fig. 2-75.)

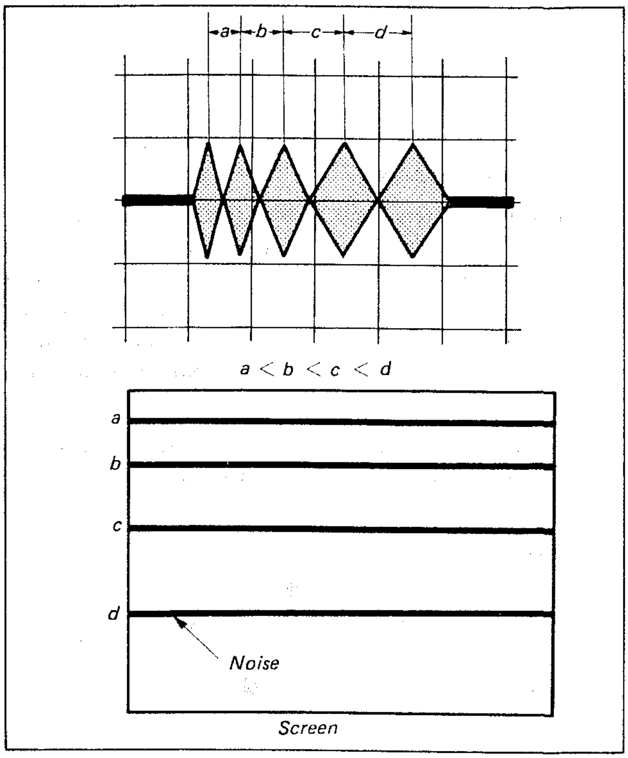


Fig. 2-83

[Narrow noise pitch on outlet side (lower screen)]
(See Fig. 2-84.)

Set up the PLAYBACK mode and adjust No. 4 and 5 guide heights as in 2-4-3. Outlet side Adjustment.

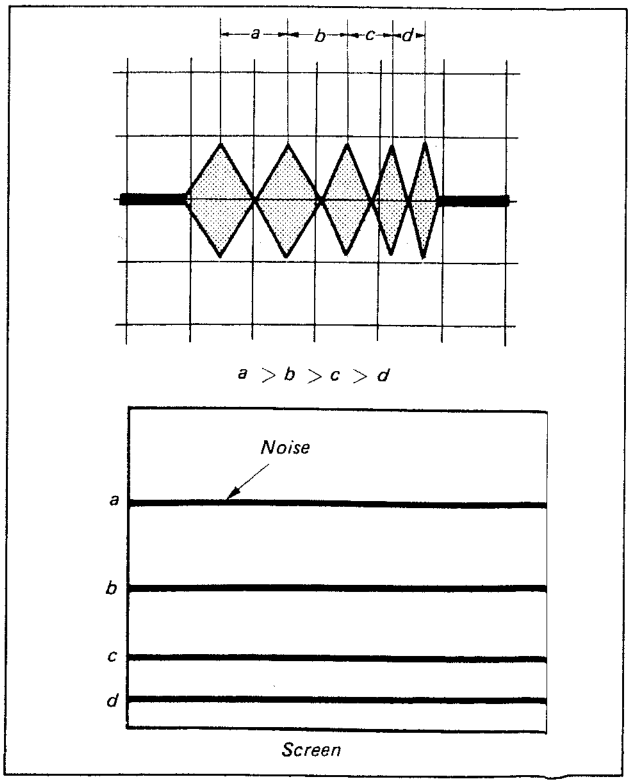


Fig. 2-84

[Wide noise pitch on outlet side (lower screen)]

(See Fig. 2-85.)

Set up the PLAYBACK mode and check that the RF waveform is flat.

Waveform is not flat:

Adjust height of No. 4 and 5 guides as in 2-4-3. Outlet side adjustment.

Waveform is flat:

Rotate the guide lower toothed wheel counterclockwise by No. 6 guide lock jig (Ref. No. J-11) to loosen the toothed wheel. Rotate No. 6 guide counterclockwise 45° to tighten the lower toothed wheel. Recheck the RF waveform of the REV mode. (See Fig. 2-86.)

Note: Wrinkles may be caused in Part Ⓐ between the capstan spindle and No. 5 guide if No. 6 guide is raised excessively. Check that no wrinkles are caused. (See Fig. 2-87.)

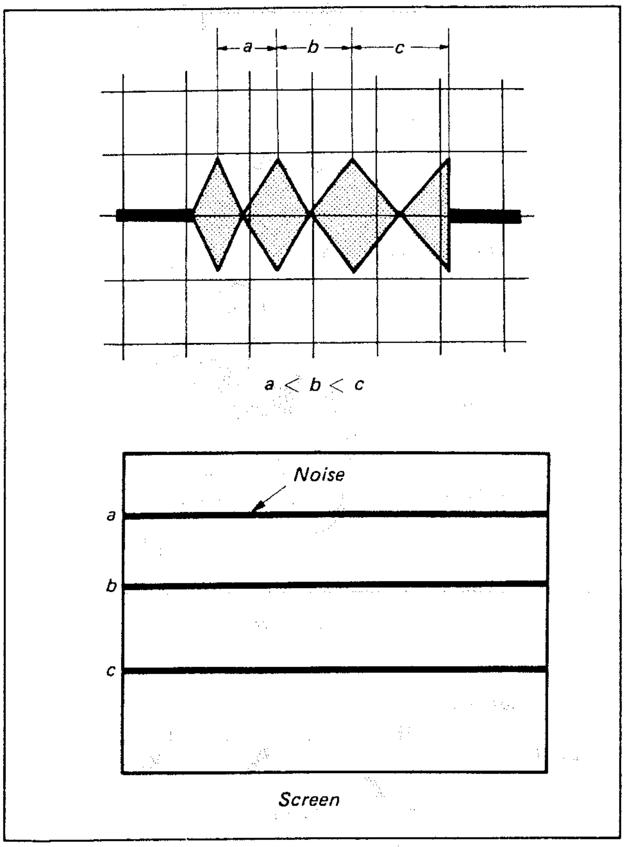

a
b
c
a < b < c
Noise
a
b
c
Screen

Fig. 2-85

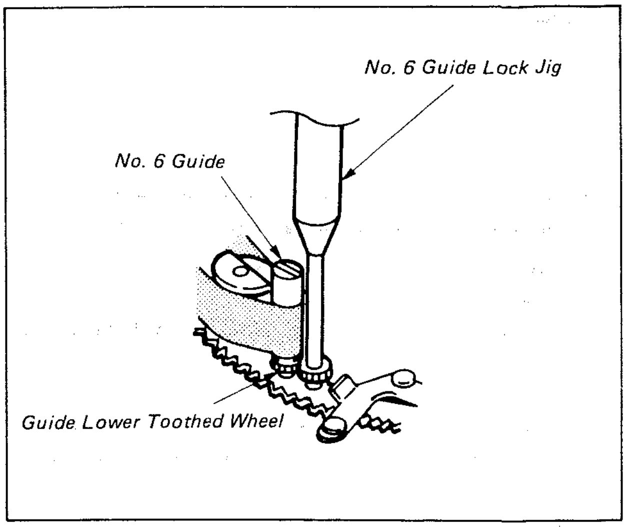

No. 6 Guide Lock Jig
No. 6 Guide
Guide Lower Toothed Wheel

Fig. 2-86

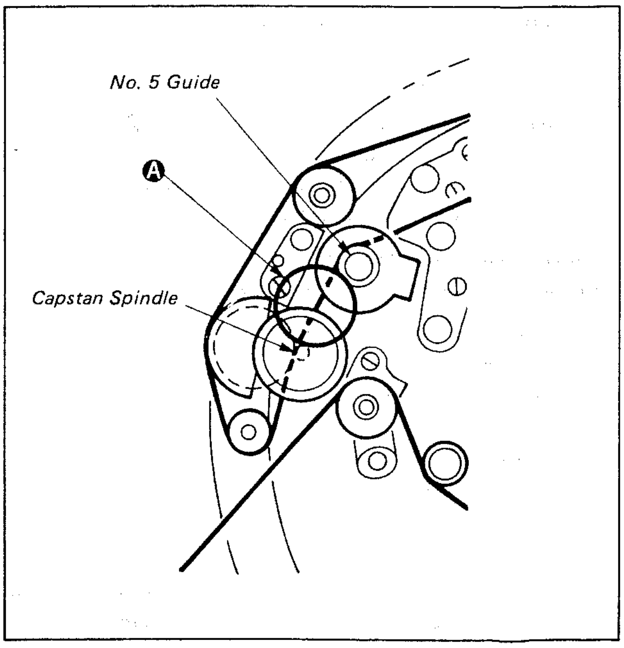

No. 5 Guide
Ⓐ
Capstan Spindle

Fig. 2-87

2. Checking rising edge

1) Check that the RF waveform rises horizontally during playing back after finishing loading, after CUE/REV, and during playing back after FF. If not, adjust as follows.

[Noise occurs on outlet side (lower screen) with rising during playing back after finishing loading] (See Fig. 2-88.)

Check that the FWD back tension is not too low.

If toolow:

Readjust as instructed in 2-3-22. FWD back tension adjustment.

If normal:

Rotate the azimuth screw of the pinch roller clockwise by 15° and adjust after rechecking the rising edge. (See Fig. 2-89.)

[Noise occurs on outlet side (lower screen) with rising during playing back after REV] (See Fig. 2-88.)

Loosen the guide lower toothed wheel of No. 6 guide using No. 6 guide lock jig, rotate No. 6 guide 90° counterclockwise to tighten the toothed wheel, then recheck the rising edge.

Note: Wrinkles may be caused in Part Ⓐ of Fig. 2-87 if No. 6 guide is raised excessively this time, between the capstan spindle and No. 5 guide, check that no wrinkles are caused.

[Noise occurs on outlet side (lower screen) with rising during playing back after FF] (See Fig. 2-88.)

Check that the FWD back tension is not too low.

If too low:

Readjust as required in 2-3-22. FWD back tension adjustment.

If normal:

Rotate the azimuth screw of the pinch roller clockwise by 15° and adjust after checking the rising edge. (See Fig. 2-89.)

Note: Be sure to check playback rising after finishing loading in case an adjustment is made.

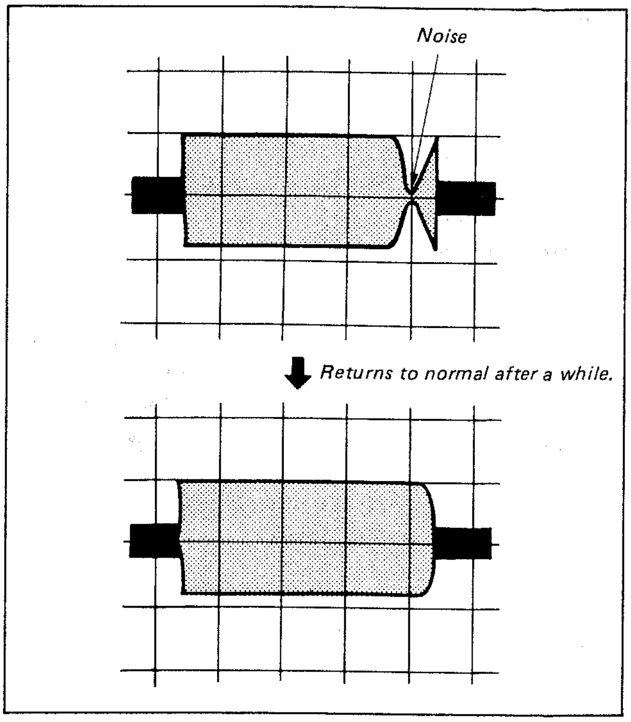

Noise
Returns to normal after a while.

Fig. 2-88

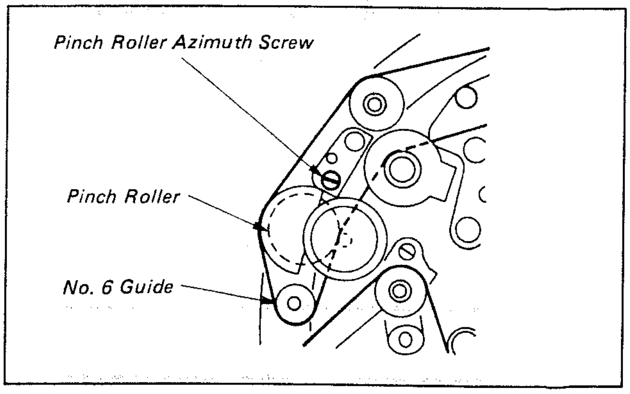

Pinch Roller Azimuth Screw
Pinch Roller
No. 6 Guide

Fig. 2-89

3. Tape run check

Check that the tape is not raised or curled at each guide flange of No. 1 to 6 (pointed by the arrows in Fig. 2-90) in PLAYBACK, CUE and REV modes.

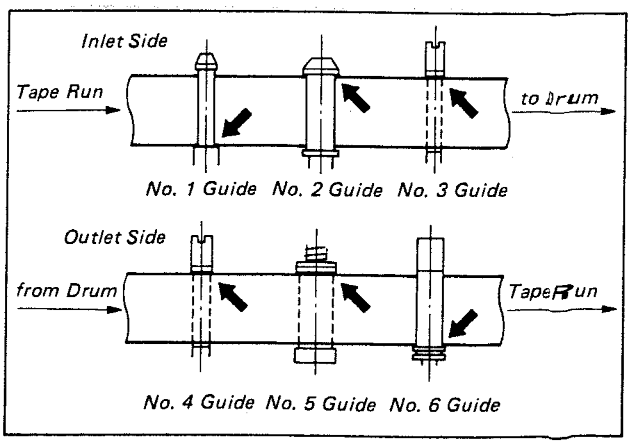

Inlet Side
Tape Run
to Drum
No. 1 Guide
No. 2 Guide
No. 3 Guide
Outlet Side
from Drum
Tape Run
No. 4 Guide
No. 5 Guide
No. 6 Guide

Fig. 2-90

3. VIDEO SECTION ADJUSTMENT

The following measuring instruments are needed in adjusting the video section.

[Equipment]

1) Monitor TV
2) AC adapter or T/T unit
3) Oscilloscope, 2 phenomena, band 10MHz or wider, with delay mode (Use a 10:1 probe unless otherwise specified)
4) Frequency counter
5) Pattern generator, with video output terminal
6) Digital voltmeter
7) Audio generator
8) Audio level meter
9) Audio distortion meter
10) Audio attenuator
11) Regulated power supply
12) Alignment tapes
    Tracking adjustment (WR5-1C)
    Parts code: 8-967-995-06
    Video frequency characteristic adjustment (WR5-2C)
    Parts code: 8-967-995-16
    Operation checking (WR5-3CL)
    Parts code: 8-967-995-36

[Equipment Connection]

Unless otherwise specified, adjustment is made by connecting the measuring instruments as shown below.

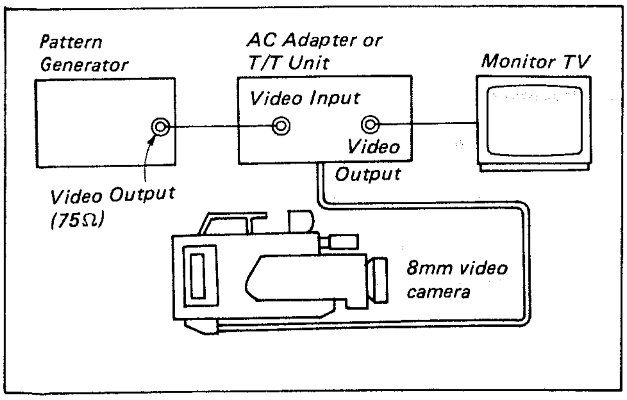

Pattern Generator
AC Adapter or T/T Unit
Monitor TV
Video Input
Video Output
Video Output (75Ω)
8mm video camera

Fig. 3-1

Setting up during adjustment

Video signals output by an pattern generator are used as adjustment signals when adjusting the video section, and these video output signals should be within the required standard. Connect an oscilloscope to TP121 (VIDEO IN) on the VI-7 Board. Check that the amplitudes of video signal SYNC signals, of picture portions, and of burst signals are flat at approximately 0.3, 0.7, and 0.3V, respectively, and that the level ratio of the burst signals and "red" signals are 0.30:0.66.

Fig. 3-2 shows video signals (colour bars) used in adjusting the video section.

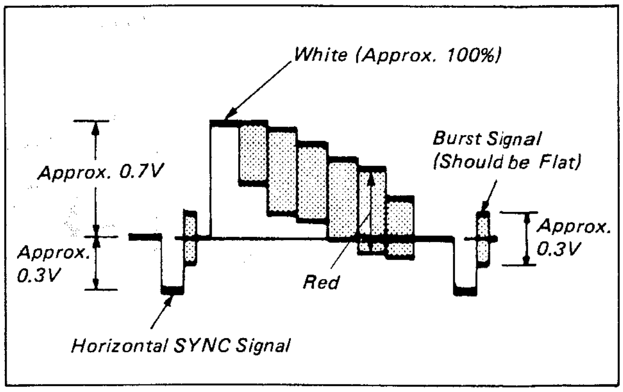
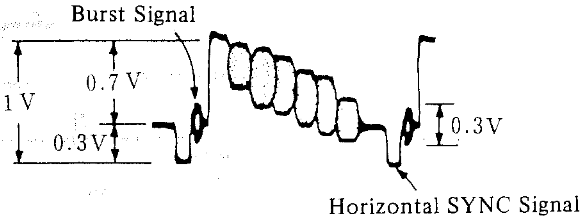
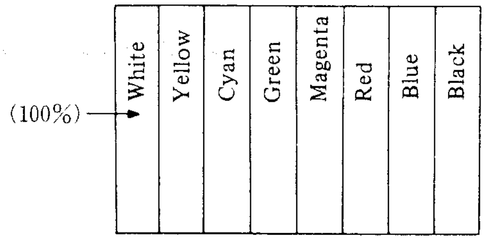

White (Approx. 100%)
Burst Signal (Should be Flat)
Approx. 0.7V
Approx. 0.3V
Approx. 0.3V
Red
Horizontal SYNC Signal

Fig. 3-2 Pattern Generator Colour Bar Signals

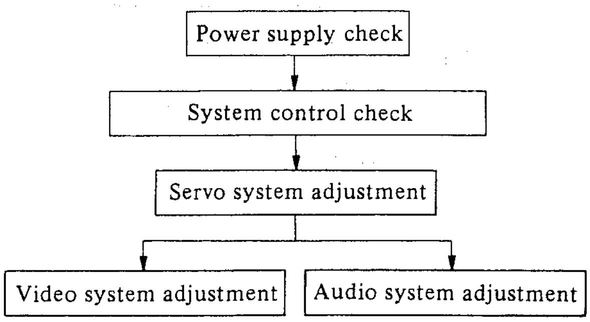
Tape	Content	Use
Tracking (WR5-1C)	1. Recording area: PCM – video 2. Recording content: CH2: 1MHz linearity adjustment signal (CH1: 9MHz)	Drum linearity adjustment
Video Frequency Characteristic (WR5-2C)	1. Recording area: Video 2. Recording content: RF sweep 0 to 10MHz 3. Marker: 1, 3.58, 5.5 and 7MHz	Frequency characteristic adjustment
Operation Checking (WR5-3CL)	1. Recording area: Video 2. Recording content: ● Video signals Colour bars 10sec } Iterative Monoscope 8sec (Colour bars)  Burst Signal 1 V 0.7 V 0.3V 0.3V Horizontal SYNC Signal  (100%) White Yellow Cyan Green Magenta Red Blue Black ● Audio signals 400Hz 60% modulation	Operation checking

Input/output level and impedance to T/T unit or AC adapter

Video input pin jack
  Input signals: 1Vp-p, 75Ω unbalanced, sync negative
Video output pin jack
  Output signals: 1Vp-p, 75Ω unbalanced, sync negative
Audio input pin jack
  Input level: –6dBs (0dBs = 0.775Vrms)
  Input impedance: 47kΩ or higher
Audio output pin jack
  Regulated output: –6dBs
  Load impedance: 47kΩ or higher

Adjustment Procedure

Adjust in the following sequence:


Power supply check
System control check
Servo system adjustment
Video system adjustment
Audio system adjustment

3-1. POWER SUPPLY CHECK (VI-7 Board)

Mode: E-E
Digital voltmeter: + probe: Pin ③ of CN006
– probe: Pin ⑥ of CN006

[Checking Method]

Must be 5.0 ±0.15V dc.

3-2. SYSTEM CONTROL ADJUSTMENT

3-2-1. Battery Failure Adjustment (HS-5, SK-8 Board)

Cassette holder: A cassette tape should not be contained.
Multiconnector: Nothing shall be connected.
Regulated power supply and digital voltmeter: See Fig. 3-3.
Oscilloscope CH1: TP604 (SK-8 Board)
CH2: TP606 (SK-8 Board)

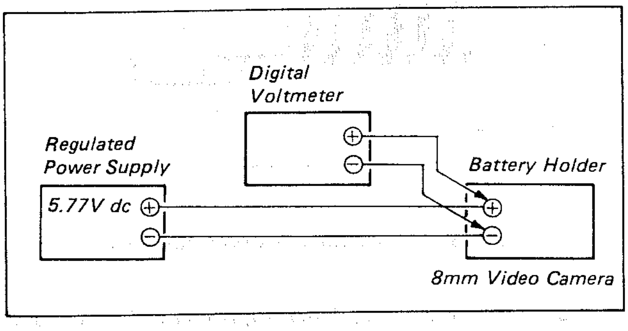


Fig. 3-3

[Adjustment Method]

1) Set the regulated power supply to 5.77V dc and turn on "VTR POWER".
2) Short TP603 and TP604 on the SK-8 Board by a jumper wire.
3) Rotate RV601 on the HS-5 Board and set to the position where a pulse is generated on CH2. (See Fig. 3-4.)
4) Rotate RV601 slowly in an opposite direction and stop it when the CH2 pulse disappears.
5) Disconnect the jumper wire.

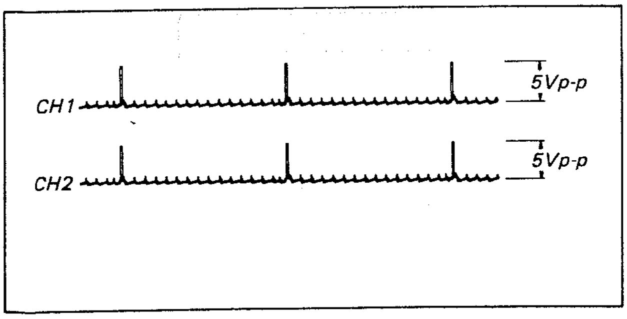


Fig. 3-4 Battery Failure Adjustment

3-2-2. Flying Erase Check (FE-4 Board)

Mode: RECORD
Oscilloscope: TP101

[Checking Method]

The oscillation frequency shall be 7MHz or more and level, 8.5Vp-p or more.

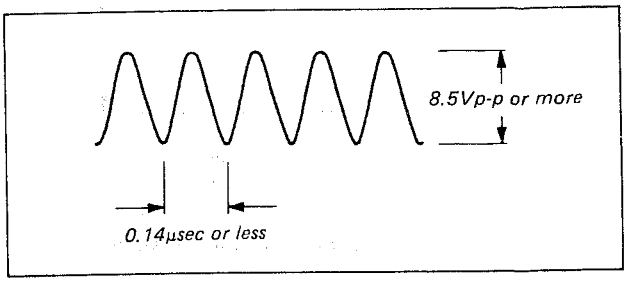


Fig. 3-5 Flying Erase Check

3-3. SERVO SYSTEM ADJUSTMENT

3-3-1. MOTOR POWER Voltage Adjustment (MC-8 Board)

Mode: E-E
Digital voltmeter: Pin ① of CN501

[Adjustment Method]

Adjust to 5.30 ±0.05V dc with RV601.

3-3-2. Capstan Free Speed Adjustment (SV-14 and AR-2 Boards)

Adjust in the sequence of SP mode and LP mode. Adjusting devices of LP mode are shown in [ ].

Mode: PLAYBACK
Tape: None recorded
Frequency counter: TP501 of SV-14 Board (CAP SP)
Connection 1: Connect TP104 (Pin ⑬ of IC101) and TP101 (REG GND) on the AR-2 Board using a 22μF/6.3V electrolytic capacitor. (TP104 is positive pole side)
Connection 2: Connect Pin ③ of CN512 (ATF LOCK) and Pin ④ of CN512 (GND) on the SV-14 Board using a jumper wire.

[Adjustment Method]

1) Set REC mode switch to SP mode [LP mode] and turn on VTR POWER.
2) Set up the PLAYBACK mode and adjust to 1341 ±2Hz [670 ±1Hz] using RV504 [RV503] on the SV-14 Board.

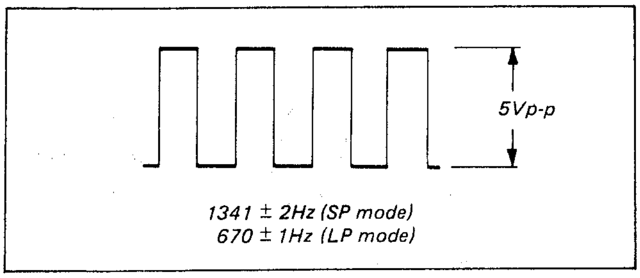

5Vp-p
1341 ± 2Hz (SP mode)
670 ± 1Hz (LP mode)

Fig. 3-6 Capstan Free Speed Adjustment

3-3-3. ATF Balance Adjustment (VI-7 and AR-2 Boards)

Mode: PLAYBACK
Alignment tape. Operation checking (WR5-3CL)
Oscilloscope: AR-2 Board Pin ④ of CN112 (RF CH1)

[Adjustment Method]

Maximize the RF output level with RV110 on the VI-7 Board.

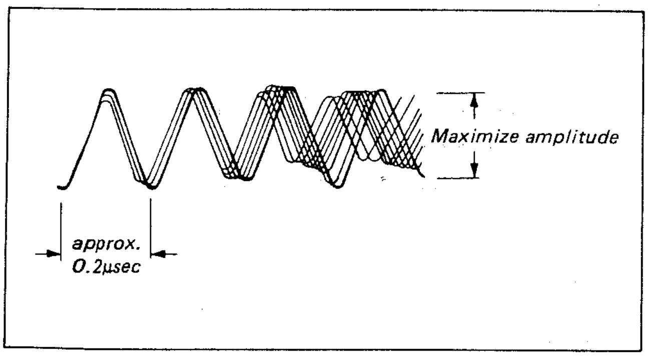

Maximize amplitude
approx. 0.2μsec

Fig. 3-7 ATF Balance Adjustment

3-3-4. Switching Position Adjustment (SV-14, VI-7 and AR-2 Boards)

Mode: PLAYBACK
Alignment tape: Operation checking (WR5-3CL)
Oscilloscope CH1: VI-7 Board TP108 (VIDEO OUT)
CH2: AR-2 Board Pin ② of CN112
(RF SW PULSE)

[Adjustment Method]

Adjust to 6.5 ±0.3H (416 ±20μsec) using RV502 on the SV-14 Board.

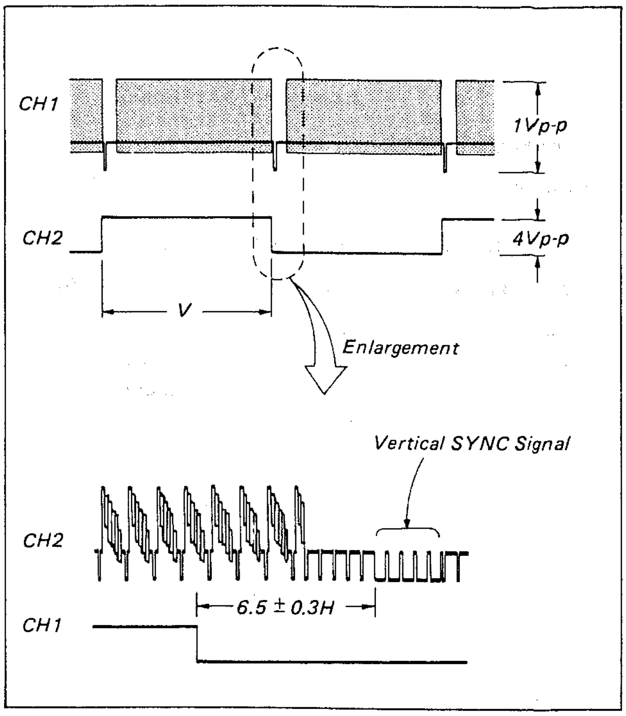

CH1
1Vp-p
CH2
4Vp-p
V
Enlargement
Vertical SYNC Signal
CH2
6.5 ± 0.3H
CH1

Fig. 3-8 Switching Position Adjustment

3-3-5. PB Pause Delay Time Adjustment (SV-14 Board)

Mode: PLAYBACK → PLAYBACK PAUSE
Tape: Operation checking (WR5-3CL)

[Adjustment Method]

Adjust while watching the monitor TV.

1) Set up the PLAYBACK mode and press the PAUSE button when playback pictures stabilize to set up the PLAYBACK PAUSE mode.
2) Check that noise is not shown on the TV screen in the PLAYBACK PAUSE mode. (See Fig. 3-9.)
3) Rotate RV501 and repeat Steps 1) and 2) if noise appears.

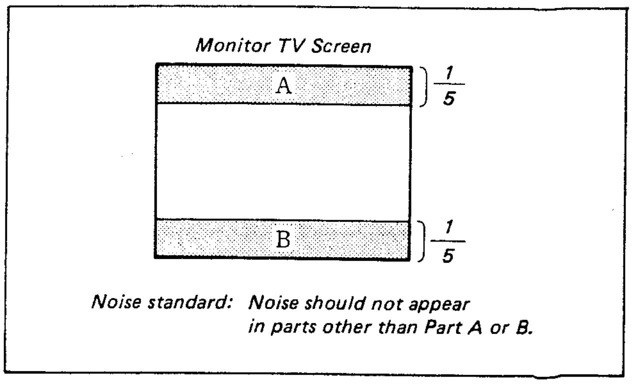

Monitor TV Screen
A
1/5
B
1/5
Noise standard: Noise should not appear in parts other than Part A or B.

Fig. 3-9 PLAYBACK PAUSE Delay Time Adjustment

3-4. VIDEO SYSTEM ADJUSTMENT

In principle, adjust the video system in the following procedure.
Colour video signals fed by a pattern generator are utilized as video input signals for video system adjustment in the RECORD mode. Check that the SYNC and colour burst signals match the standard designated in adjustment setting up shown in Fig. 3-2.

[Adjustment Procedure]

1) Playback frequency characteristic adjustment
2) PB Y trap adjustment
3) X'tal oscillator fo adjustment
4) 375 fH VCO adjustment
5) Y comb AGC adjustment
6) C comb AGC adjustment
7) SYNC AGC adjustment
8) VIDEO OUT level adjustment
9) PB Y level adjustment
10) Y FM carrier frequency adjustment
11) Y FM deviation adjustment
12 AC clip adjustment
13) Carrier balance adjustment
14) Chroma emphasis fo adjustment
15) REC C RF Trap adjustment
16) fH VCO adjustment
17) GCA GAIN adjustment
18) REC Y recording current adjustment
19) REC C recording current adjustment
20) REC ATF recording current adjustment

3-4-1. Playback Frequency Characteristic Adjustment (AR-2 Board)

CH2 adjusting devices are shown in [ ].
Moed: PLAYBACK
Alignment tape: Frequency characteristic adjustment (WR5-2C)
Oscilloscope CH1: Pin④ of CN112 [Pin③ of CN112]
External trigger: Pin② of CN112 [Pin② of CN112]
Trigger slope: +, [−]

[Adjustment Method]

Adjust the ratio between the 3.58 and 5.5MHz levels to 4:3 using RV102 [RV106].

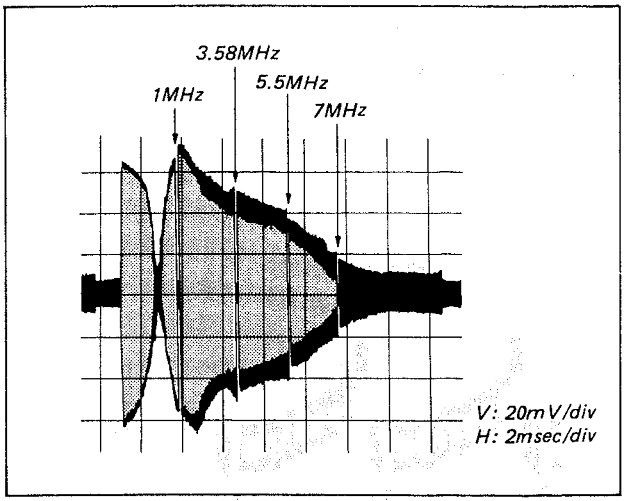


Fig. 3-10 Playback Frequency Characteristic Adjustment

3-4-2. PB Y Trap Adjustment (AR-2 Board)

Mode: Self-recording and PLAYBACK
Input signals: Colour bar

[Adjustment Method]

1) Record.
2) Play back recorded portions.
3) Rotate LV101 while watching the monitor TV screen and stop rotating when the beat is minimum.

3-4-3. X'tal Oscillator fo Adjustment (VI-7 Board)

Mode: PLAYBACK
Alignment tape: For operation checking (WR5-3CL)
Frequency counter: Pin③ of CN110

Note: Connect the frequency counter through a buffer with high impedance (approx. 10MΩ) and low capacity (less than 10pF).

[Adjustment Method]

Adjust to 4.433619 ±50Hz with CV101.

3-4-4. 375fH VCO Adjustment (VI-7 Board)

Mode: E-E
Input signals: Colour bar
Digital voltmeter: Pin ㉖ of IC104

[Adjustment Method]

Adjust to 3.00 ±0.05V dc with RV111.

3-4-5. Y Comb AGC Adjustment (VI-7 Board)

Mode: E-E
Input signals: Colour bar
Oscilloscope: Pin ⑨ of IC102

Connect a 22kΩ resistor serially between Pin ⑨ of IC102 and 10:1 probe.

[Adjustment Method]

Adjust to 50 ± 25mVp-p with RV108.

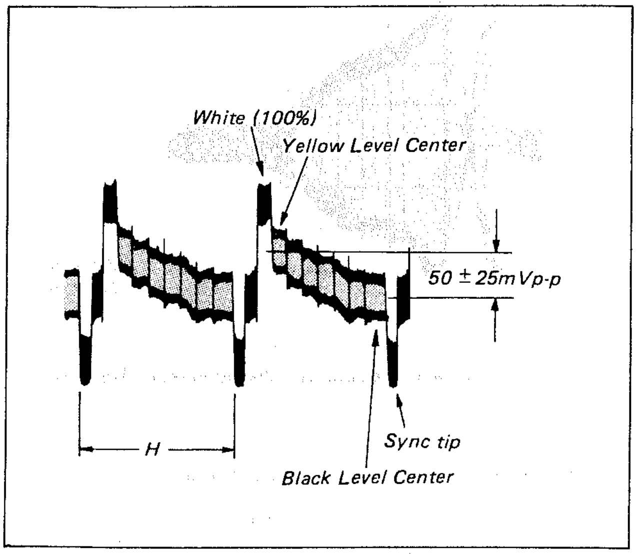

White (100%)
Yellow Level Center
50 ± 25m Vp-p
H
Sync tip
Black Level Center

Fig. 3-11 Y Comb AGC

3-4-6. C Comb AGC Adjustment (VI-7 Board)

Mode: E-E
Input signals: Colour bar
Oscilloscope: Pin ㉖ of IC102 or Pin ③ of CN014 on the EX-3 board.
Connection: Connect Q113 base to REG GND.

[Adjustment Method]

Adjust RV107 and LV103 alternately to minimize residual chroma components.

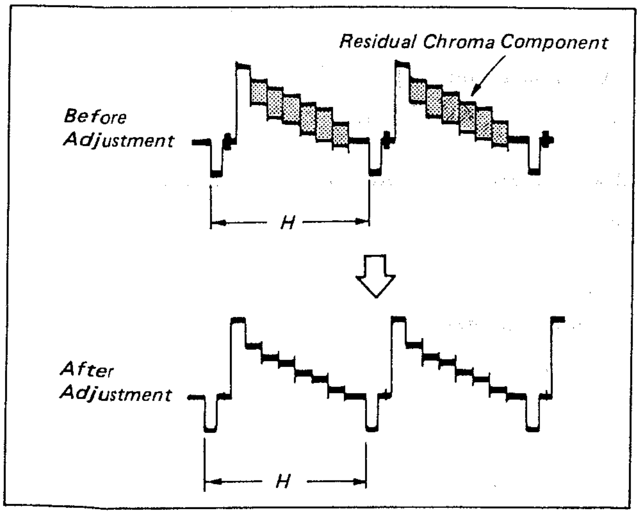

Residual Chroma Component
Before Adjustment
H
After Adjustment
H

Fig. 3-12 C Comb AGC Adjustment

3-4-7. SYNC AGC Adjustment (VI-7 Board)

Mode: E-E
Input signals: Colour bar
Oscilloscope: Pin ㊲ of IC101 or Pin ⑦ of CN014 on the EX-3 board.

[Adjustment Method]

Adjust to 0.5 ±0.01Vp-p with RV102.

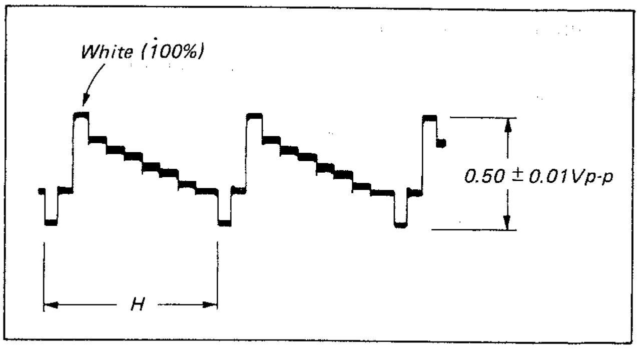

White (100%)
0.50 ± 0.01Vp-p
H

Fig. 3-13 SYNC AGC Adjustment

3-4-8. VIDEO OUT Level Adjustment (VI-7 Board)

Mode: E-E
Input signals: Colour bar
Oscilloscope: TP108 (VIDEO OUT)
An AC adapter or T/T unit must be connected to the multiconnector.

[Adjustment Method]

Adjust to $1.00\,^{+0.025}_{-0.05}$ Vp-p with RV101.

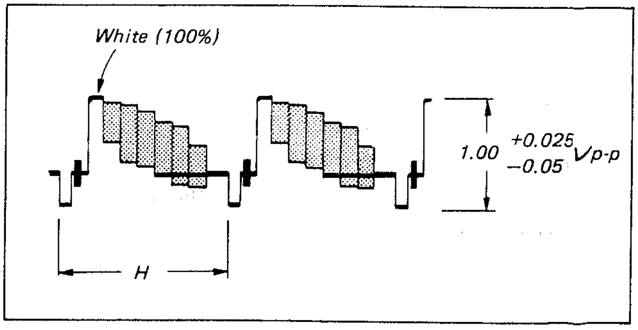

White (100%)
1.00 +0.025 -0.05 Vp-p
H

Fig. 3-14 VIDEO OUT Level Adjustment

3-4-9. PB Y Level Adjustment (VI-7 Board)

Mode: PLAYBACK
Alignment tape: For operation checking, (WR5-3CL) colour bar portion
Oscilloscope: TP108 (VIDEO OUT)
An AC adapter or T/T unit must be connected to the multiconnector.

[Adjustment Method]

Adjust to 1.00 ±0.05Vp-p with RV106.

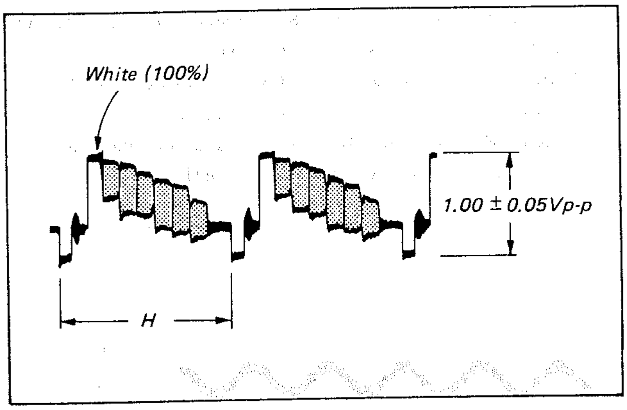


Fig. 3-15 PB Y Level Adjustment

3-4-10. Y FM Carrier Frequency Adjustment (VI-7 Board)

Mode: E-E
Input signal: None
Frequency counter: Pin ⑥ of CN009 (REC Y RF)
Oscilloscope: Pin ⑥ of CN009 (REC Y RF)
Digital voltmeter: The center of RV104 (AC clip) or Pin ㉚ of IC101

[Adjustment Method]

1) Minimize the voltage (approx. 2.4V dc) of Pin ㉚ of IC101 with RV104.
2) Adjust to 4.20 ±0.04MHz with RV103 (Carrier).
   Check the waveform level.
   Standard: 0.53 ±0.08Vp-p
3) Perform steps required in 3-4-12. AC Clip Adjustment.

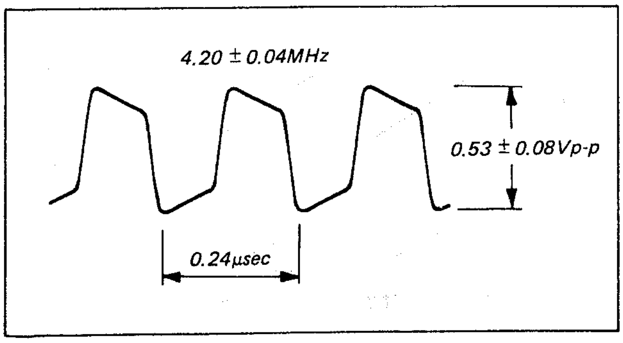


Fig. 3-16 Y FM Carrier Frequency Adjustment

3-4-11. Y FM Deviation Adjustment (VI-7 Board)

Adjustments of VIDEO OUT level, PB Y level, and Y FM carrier frequency must be finished.

Mode: Self-recording and PLAYBACK
Input signals: Colour bar
Oscilloscope: TP108 (VIDEO OUT)
An AC adapter or T/T unit must be connected to the multiconnector.

[Adjustment Method]

1) Record colour bar signals.
2) Play back recorded portions.
3) Check the playback output level.
   Standard: 1.00 ±0.04Vp-p
4) Rotate RV105 as follows and repeat Steps 1) through 3) when the value does not satisfy the standard.

	RV105 rotation direction seen from component side
Larger than standard value	Clockwise (↷)
Smaller than standard value	Counterclockwise (↶)

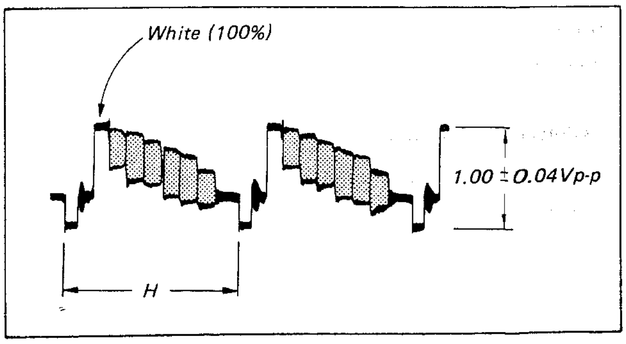


Fig. 3-17 Y FM Deviation Adjustment

3-4-12. AC Clip Adjustment (VI-7 Board)

Mode: E-E
Input signals: Colour bar
Oscilloscope: Pin ㉔ of IC101

[Adjustment Method]

Adjust the peak of white (100%) portion to 250 ±10% with RV104.

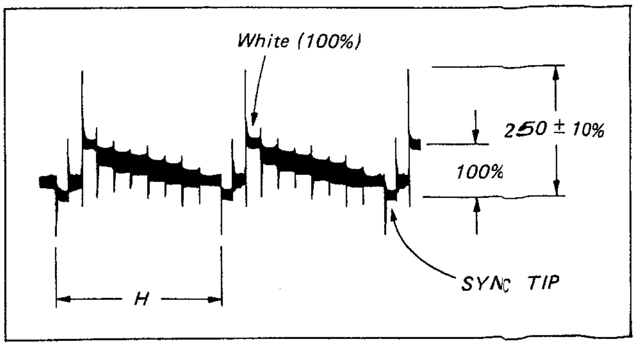


Fig. 3-18 AC Clip Adjustment

3-4-13. Carrier Balance Adjustment (VI-7 Board)

Mode: E-E
Input signals: Colour bar
Oscilloscope: Pin ㊵ of IC104

[Adjustment Method]

Minimize the 5.17MHz component with RV109.

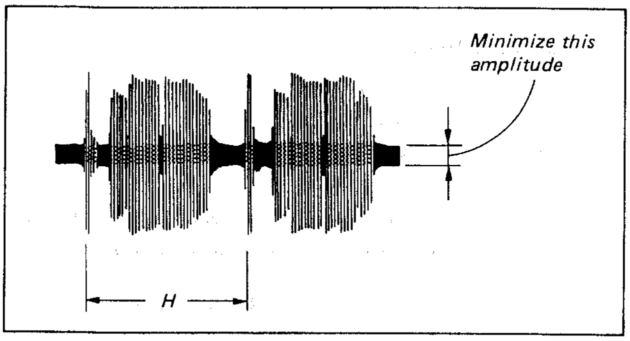


Fig. 3-19 Carrier Balance Adjustment

3-4-14. Chroma Emphasis fo Adjustment (VI-7 Board)

Mode: E-E
Input signals: Colour bar
Oscilloscope: Pin ⑪ of IC103

[Adjustment Method]

Minimize the amplitude of the flat portions of chroma signals with FL102.

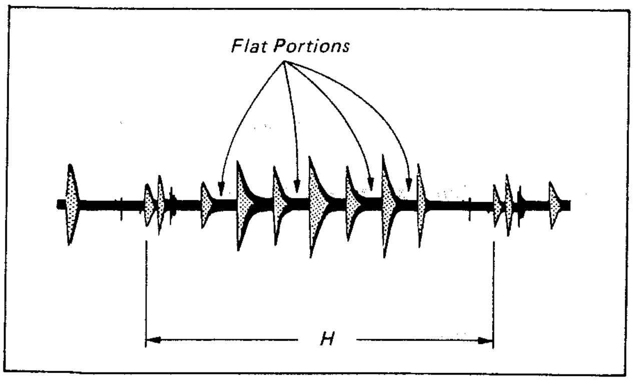


Fig. 3-20 Chroma Emphasis fo Adjustment

3-4-15. REC C RF Trap Adjustment (VI-7 and AR-2 Boards)

Mode: E-E
Input signals: None
Oscilloscope: Pin ② of CN009 on the VI-7 board
Frequency counter: Pin ⑬ of IC401 on the AR-2 board
Connection: Connect Pin ㊵ of IC104 on the VI-7 board and Pin ⑭ of IC401 on the AR-2 board using a 0.01μF capacitor.

[Adjustment Method]

1) Adjust RV402 on the AR-2 board so that the AFM Carrier Frequency is 1.41 ±0.01MHz.
2) Minimize the residual 1.41MHz component of Pin ② of CN009 with LV102 on the VI-7 board.
3) Adjust RV402 on the AR-2 board so that the AFM Carrier Frequency is 1.500 ±0.002MHz.

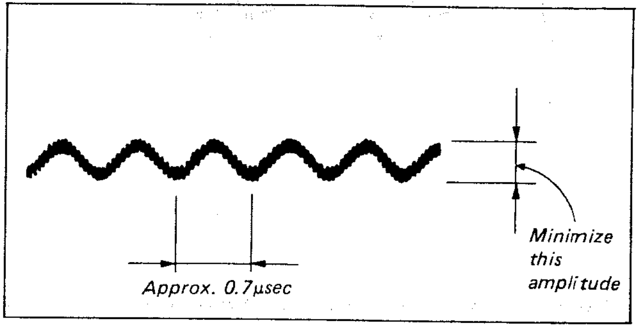


Fig. 3-21 REC C RF Trap Adjustment

3-4-16. fH VCO Adjustment (VI-7 Board)

Mode: E-E
Input signals: Colour bar
Oscilloscope: CH1: Pin ⑬ of IC108
CH2: TP121 (VIDEO IN)

[Adjustment Method]

1) Adjust RV112 so that the T_R of CH1 is 16.0 ±0.5μsec.
2) Confirm that the H (time) of CH1 and CH2 is stable.

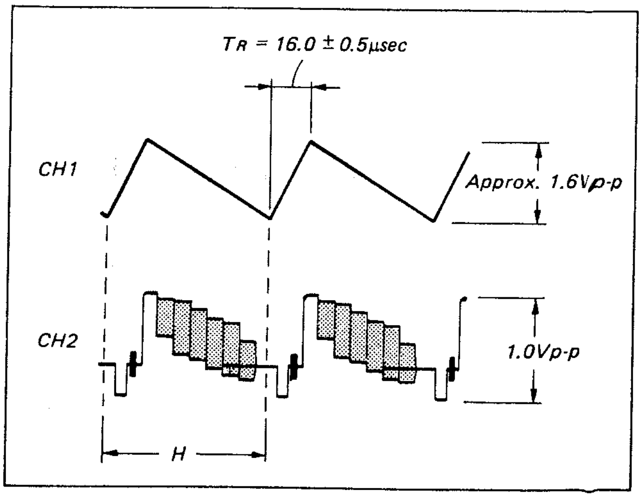


Fig. 3-22 f_H VCO Adjustment

3-4-17. GCA GAIN Adjustment (VI-7 Board)

Mode: PLAYBACK PAUSE
Alignment tape: For operation checking (WR5-3CL) colour bar portion
Oscilloscope: TP108 (VIDEO OUT)

[Adjustment Method]

Adjust RV113 so that the burst signal is 290mVp-p.

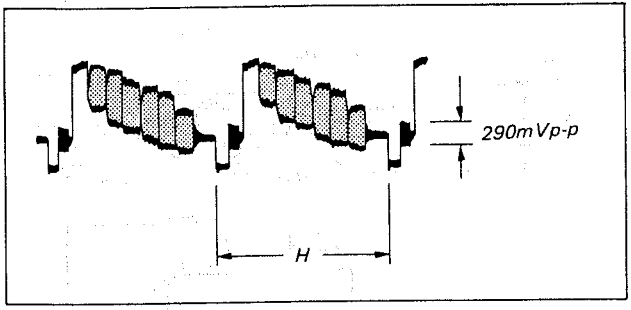


Fig. 3-23 GCA GAIN Adjustment

3-4-18. REC Y Recording Current Adjustment (AR-2 Board)

Mode: RECORD
Tape: MP type (Pin ③ of CN009 shall be approx. 5V dc.)
Input signals: None
Oscilloscope: TP102
Connection: Connect the following three places with jumper wires.
Pin ② of CN009 (REC C RF) – REG GND
Pin ⑥ of CN008 (REC ATF RF) – REG GND
Terminal of RV104 (REC AFM ADJ) on the R125 side – REG GND

[Adjustment Method]

Adjust to 160mVp-p with RV101.

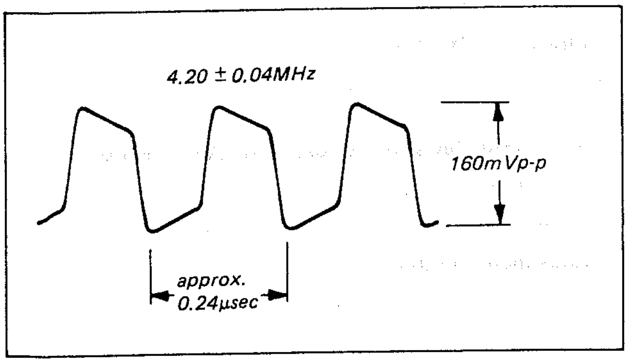


Fig. 3-24 REC Y Recording Current Adjustment

3-4-19. REC C Recording Current Adjustment (AR-2 Board)

Mode: RECORD
Tape: MP type (Pin ③ of CN009 shall be approx. 5V dc.)
Input signal: Colour bar
Oscilloscope: TP102 Do not use a 10:1 probe if the signal level is too small and is difficult to read. Connect directly using a 100Ω resistor as shown below.

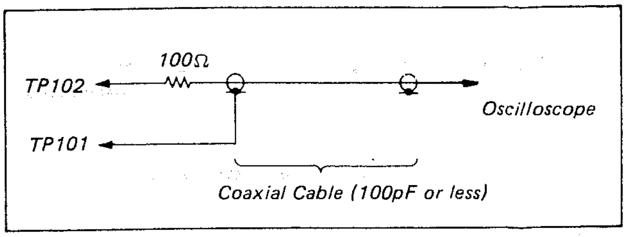


Fig. 3-25

Connection: Connect the following three locations using jumper wires.
Pin ⑥ of CN009 (REC Y RF) – REG GND
Pin ⑥ of CN008 (REC ATF RF) – REG GND
Terminal of RV104 (REC AFM ADJ) on the R125 side – REG GND

[Adjustment Method]

1) Rotate RV104 (REC AFM ADJ) to maximize the chroma signal level.
2) Adjust the red level to 30mVp-p with RV105 (REC C ADJ).
3) Make REC ATF and AFM recording current adjustments as required in 3-4-20 and 3-5-3, respectively.

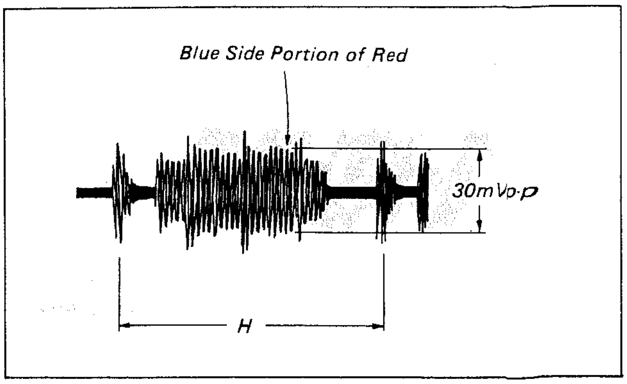


Fig. 3-26 REC C Recording Current Adjustment

3-4-20. REC ATF Recording Current Adjustment (AR-2 Board)

Mode: RECORD
Tape: MP type (Pin ③ of CN009 shall be approx. 5V dc.)
Input signals: Colour bar
Oscilloscope: TP102 Do not use a 10:1 probe if the signal level is too small and is difficult to read. Connect directly using a 100Ω resistor as shown below.

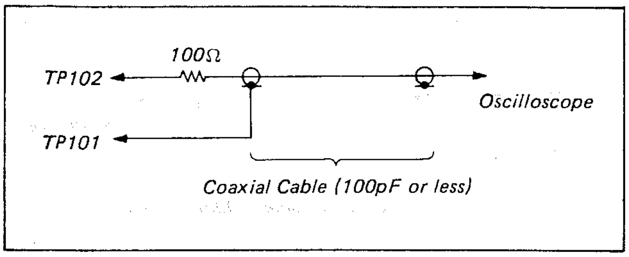

100Ω
TP102
TP101
Oscilloscope
Coaxial Cable (100pF or less)

Fig. 3-27

Connection: Connect the following three locations using jumper wires.
Pin ⑥ of CN009 (REC Y RF) – REG GND
Pin ② of CN009 (REC C RF) – REG GND
Terminal of RV104 (REC AFM ADJ) on R125 side – REG GND

[Adjustment Method]

1) Adjust RV104 (REC AFM ADJ) to the mechanical center.
2) Adjust to 6.0mVp-p with RV103 (REC ATF ADJ).
3) Perform steps mentioned in 3-5-3. AFM Recording Current Adjustment.

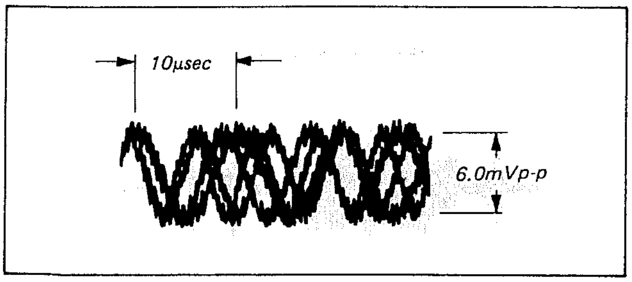


Fig. 3-28 REC ATF Recording Current Adjustment

3-5. AUDIO SYSTEM ADJUSTMENT

Connection of audio measuring instruments

Connect audio-system measuring instruments as shown below in addition to video system measuring instruments.

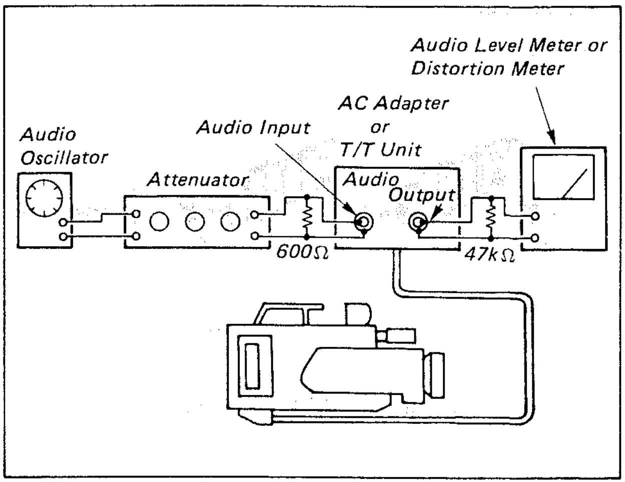

Audio Level Meter or Distortion Meter
AC Adapter or T/T Unit
Audio Oscillator
Audio Input
Attenuator
Audio Output
600Ω
47kΩ

Fig. 3-29

[Adjustment Procedure]

1) AFM carrier frequency adjustment
2) AFM deviation adjustment
3) AFM recording current adjustment
4) E-E output level check
5) Overall level characteristic check
6) Overall distortion factor check
7) Overall noise level check

3-5-1. AFM Carrier Frequency Adjustment (AR-2 Board)

Mode: RECORD
Audio input signals: None
Frequency counter: Pin ⑬ of IC401

[Adjustment Method]

Adjust to 1.500 ±0.002MHz with RV402.

3-5-2. AFM Deviation Adjustment (AR-2 Board)

Mode: PLAYBACK
Playback tape: For operation checking (WR5-3CL)

[Adjustment Method]

Adjust the audio output level to −6.5 ±0.2dBs with RV401.

3-5-3. AFM Recording Current Adjustment (AR-2 Board)

Mode: RECORD
Tape: MP type (Pin ③ of CN009 shall be approx. 5V dc.)
Audio input signals: None
Oscilloscope: TP102 Do not use a 10:1 probe if the signal level is too small and is difficult to read. Connect directly using a 100Ω resistor as shown below.

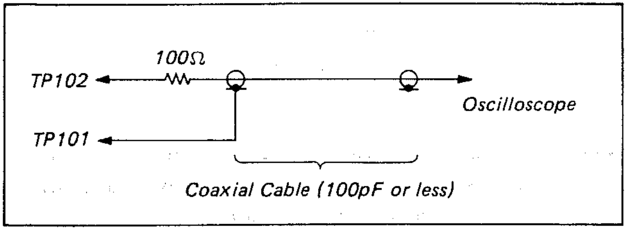


Fig. 3-30

Connection: Connect the following three locations using jumper wires.

Pin ⑥ of CN009 (REC Y RF) – REG GND
Pin ② of CN009 (REC C RF) – REG GND
Pin ⑥ of CN008 (REC ATF RF) – REG GND

[Adjustment Method]

Adjust to 7.0mVp-p with RV104.

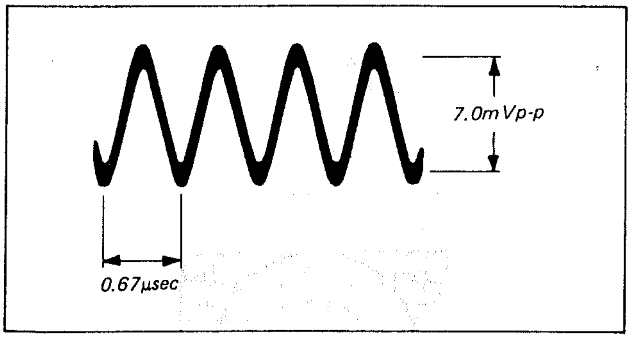


Fig. 3-31 AFM Recording Current Adjustment

3-5-4. E-E Output Level Check

Mode: E-E or RECORD
Audio input signals: 400Hz, –6dBs

[Checking Method]

The audio output level must be –6 ±2dBs.

3-5-5. Overall Level Characteristic Check

Mode: Self-recording and PLAYBACK (LP)
Tape: MP type
Audio input signals: 400Hz, –6dBs

[Checking Method]

1) Record.
2) Play back recorded portions.
3) The audio output level must be –6 ±3dBs.

3-5-6. Overall distortion Check

Mode: Self-recording and PLAYBACK (LP)
Tape: MP type
Audio input signals: 400Hz, –6dBs

[Checking Method]

1) Record.
2) Play back recorded portions.
3) The distortion must be less than 1.0% (0.5% when using a filter ohown below).

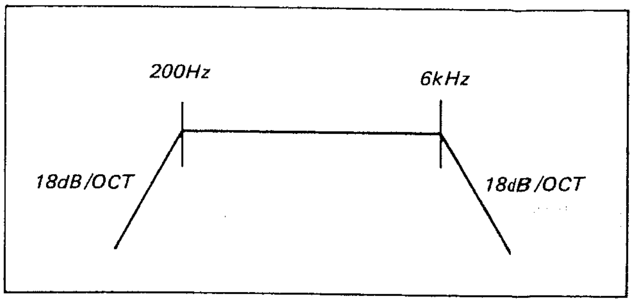


Fig. 3-32 Distortion Measurement Filter

3-5-7. Overall Noise Level Check

Mode: Self-recording and PLAYBACK (LP)
Tape: MP type
Audio input signals: None (Short audio input terminal)

[Checking Method]

1) Record.
2) Play back recorded portions.
3) The noise level must be less than –66dBs.

4. ELECTRONIC VIEW FINDER ADJUSTMENT

4-1. HORIZONTAL SLANT ADJUSTMENT

Alignment tape: For operation checking (WR5-3CL)

[Adjustment Method]

1) Play back the monoscope portions of the alignment tape.
2) Rotate the deflection coil while moving it closer to the fluorescent screen and fix the deflection coil so that pictures become horizontal.
   (Do not strap too strongly.)

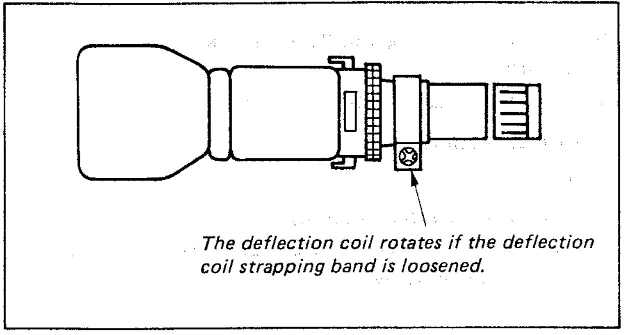
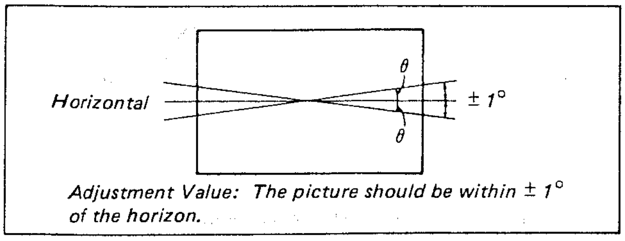

The deflection coil rotates if the deflection coil strapping band is loosened.

Fig. 4-1



Adjustment Value: The picture should be within ± 1° of the horizon.

Fig. 4-2

4-2. CENTERING ADJUSTMENT

Alignment tape: For operation checking (WR5-3CL)

[Adjustment Method]

1) Play back monoscope portions of the alignment tape.
2) Move the centering magnet to adjust to obtain pictures that are uniform horizontally and vertically.

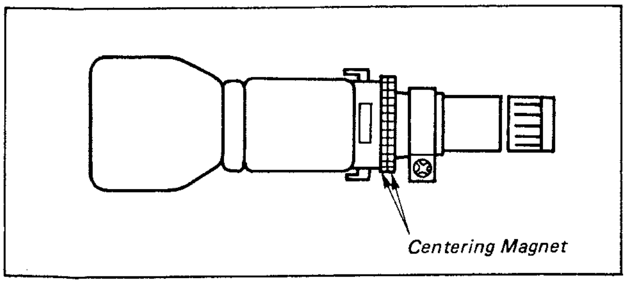
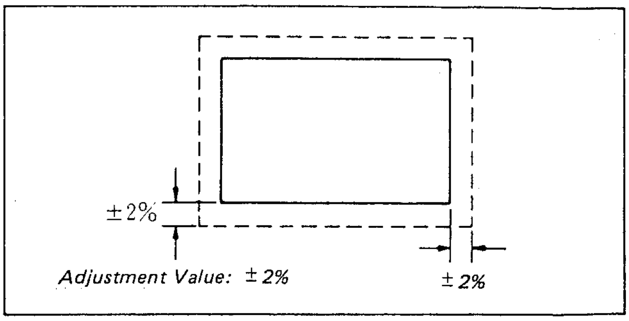


Fig. 4-3



Adjustment Value: ± 2%

Fig. 4-4

Note: The centering position changes affected by ground magnetism. Rotate 360° horizontally and adjust by the displacement center portion.

4-3. HORIZONTAL AMPLITUDE ADJUSTMENT (VF-4 Board)

Alignment tape: For operation checking (WR5-3CL)

[Adjustment Method]

1) Play back the monoscope portions of the alignmentt tape.
2) Rotate RV003 and align the top and bottom portions of the monoscope picture to the top and bottom edges of the screen.
3) Rotate RV005 to obtain the normal level of brightness.
4) Short or open the patterns (A to C) of the H-size adjusting capacitors (C028 to C030) sequentially to obtain horizontal overscanning of 8 ±2.5% (total of both left and right). (See Fig. 4-6.)

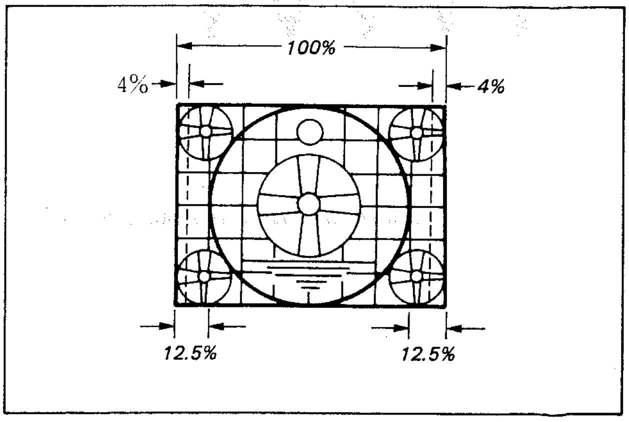


Fig. 4-5

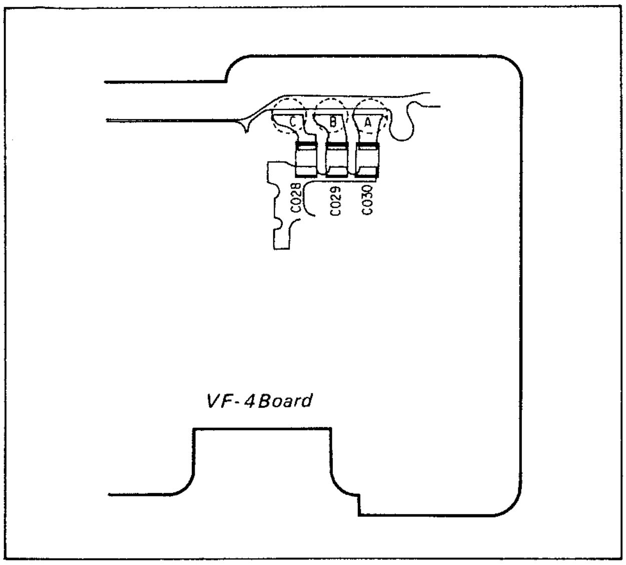


Fig. 4-6

4-4. VERTICAL AMPLITUDE ADJUSTMENT (VF-4 Board)

Alignment tape: For operation checking (WR5-3CL)

[Adjustment Method]

1) Play back the monoscope portions of the alignment tape.
2) Adjust RV003 to obtain vertical overscanning of 5 ±2.5% (total of both top and bottom).

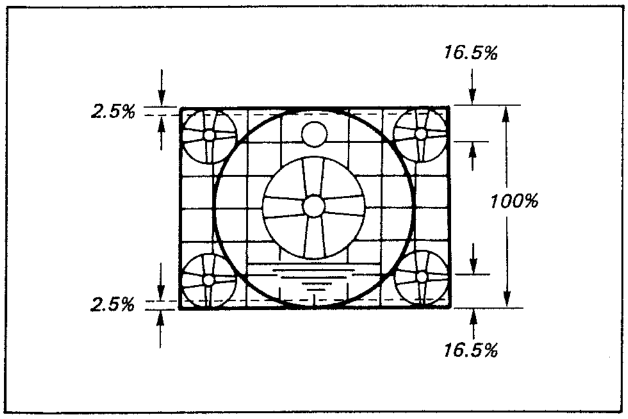


Fig. 4-7

4-5. HORIZONTAL OSCILLATING FREQUENCY ADJUSTMENT (VF-4 Board)

Preparation: Connect between Pin ⑨ of IC001 and GND using a jumper wire. Cover a white cap on the camera lens.

[Adjustment Method]

1) Turn on camera power.
2) Adjust RV001 to obtain pictures as shown in Fig. 4-8. (Flow of horizontal blanking portion (black lines) should be less than two lines.)

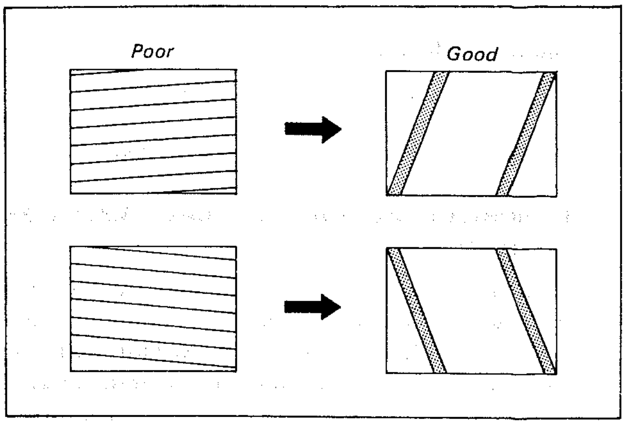


Fig. 4-8

4-6. VERTICAL OSCILLATING FREQUENCY ADJUSTMENT (VF-4 Board)

Preparation: Connect between Pin ⑨ of IC001 and GND using a jumper wire.

Equipment: A frequency counter or an oscilloscope

[Adjustment Method]

1) Connect the frequency counter or oscilloscope to the − side (DV1 terminal) of C015.
2) Adjust the frequency to 42 ±1Hz (23.8 ±0.6msec) with RV002.

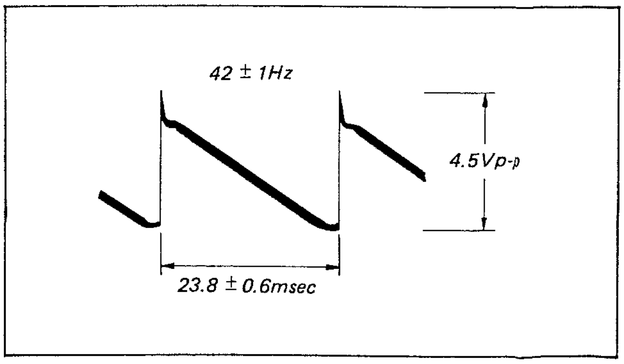


Fig. 4-9

4-7. BRIGHTNESS AND CONTRAST ADJUSTMENT (VF-4 board)

Alignment tape: For operation checking (WR5-3CL)

[Adjustment Method]

1) Play back the monoscope portions of the alignment tape.
2) Adjust RV004 and RV005 alternately until light and shade of the gray scale is indicated correctly.
   (The light portion should not be so bright that the cross hatch inside the monoscope circle blooms. The shade portion should not be so dark that the darkest and second darkest portions of the gray scale cannot be recognized.)

4-8. FOCUS ADJUSTMENT (VF-4 Board)

Alignment tape: For operation checking (WR5-3CL)

[Adjustment Method]

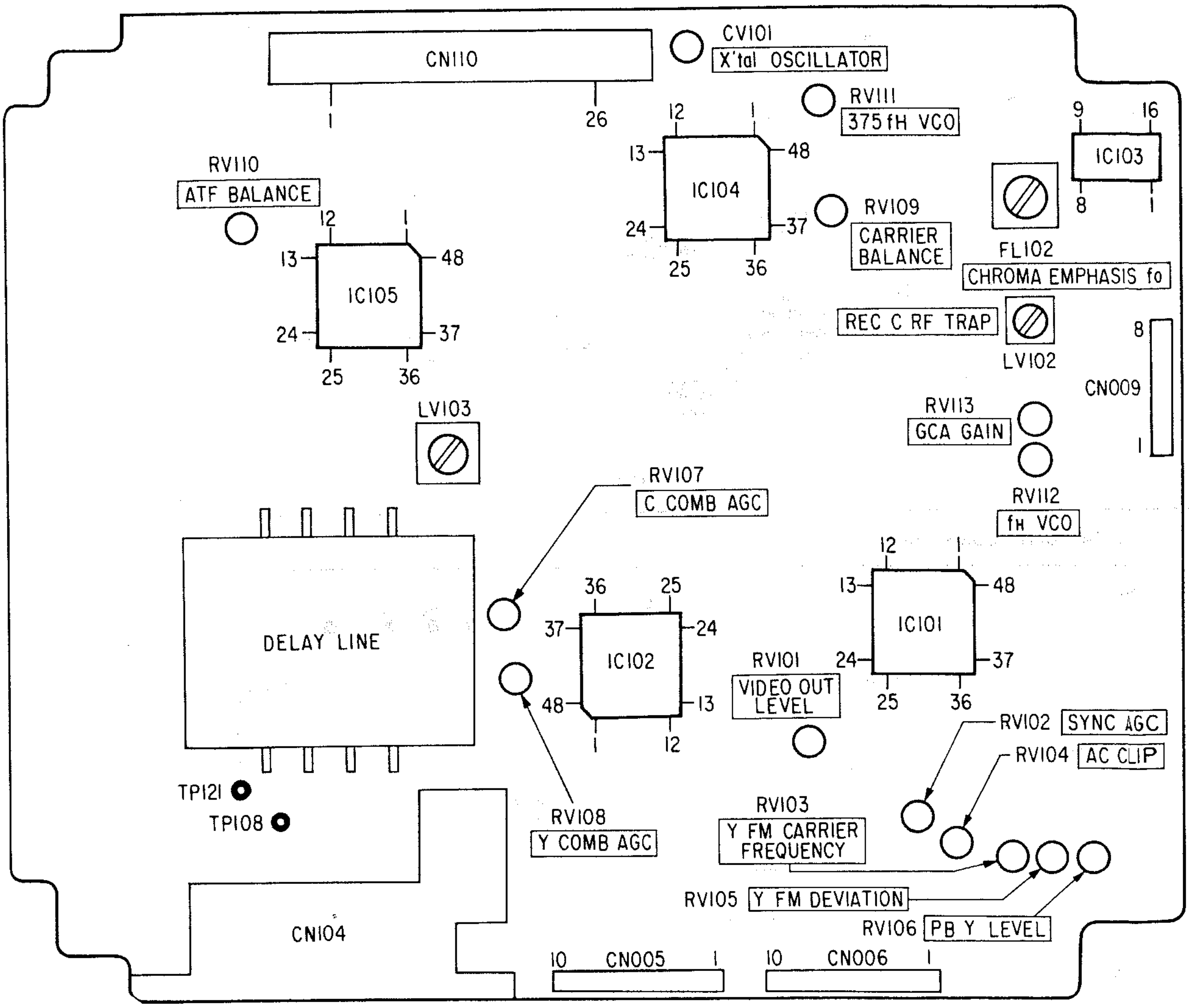
1) Play back the monoscope portions of the alignment tape.
2) Adjust to the best focus point with RV006.

4-9. HORIZONTAL AND VERTICAL AMPLITUDE CHECKING

The parameters given in 4-3. Horizontal Amplitude Adjustment and 4-4. Vertical Amplitude Adjustment must be within the standard values. If not, readjust. Perform the steps required in 4-7 Brightness and Contrast Adjustment and 4-8 Focus Adjustment as well when making horizontal and vertical amplitude adjustment.

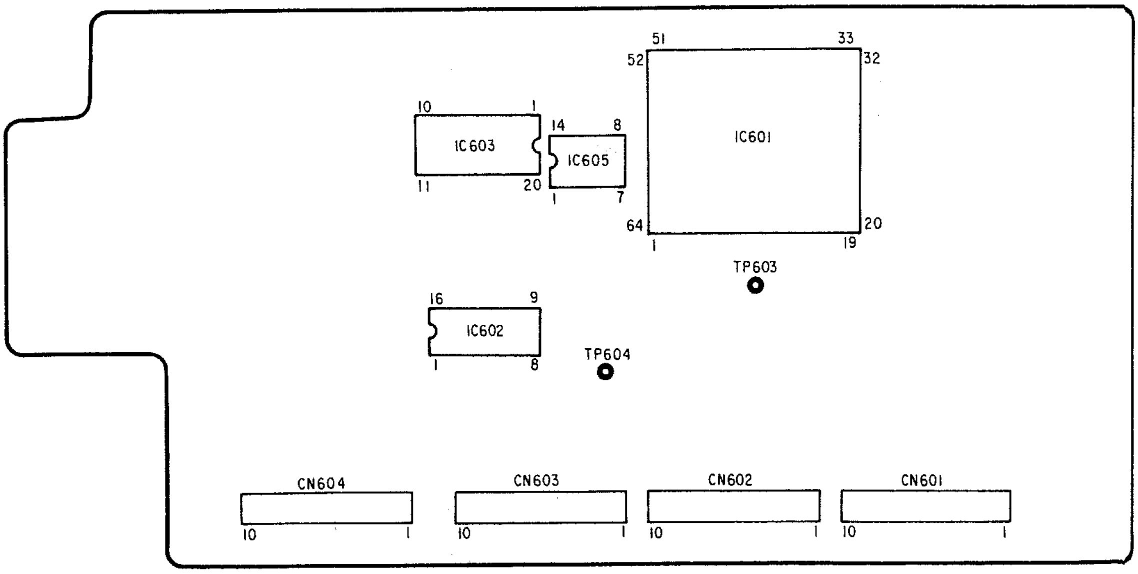
5. RV AND TP LOCATION

VI-7 Board (Component Side)



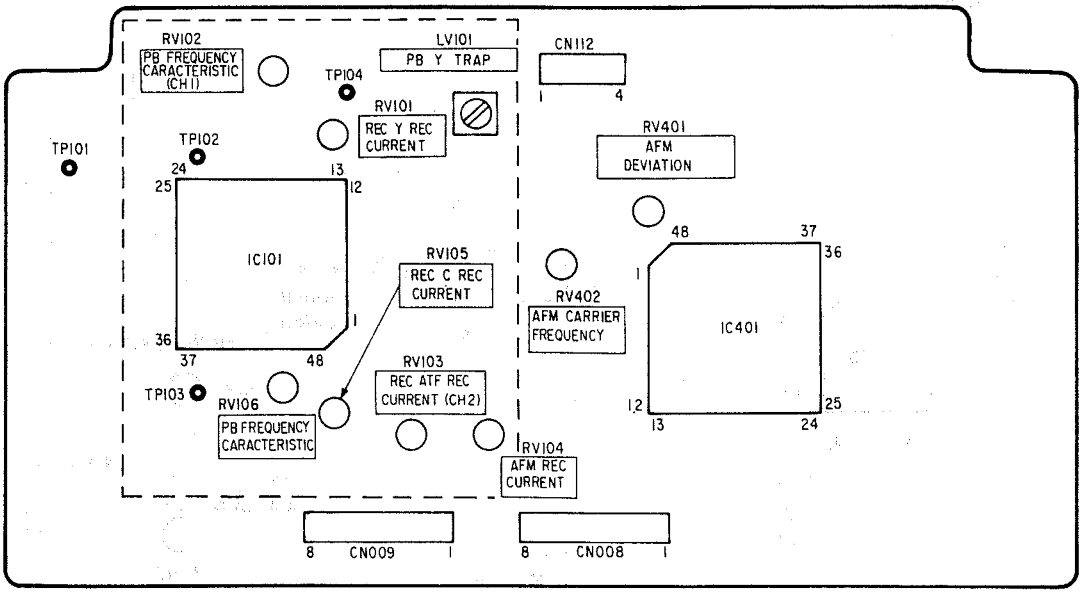
CN110
1
26
CV101
X'tal OSCILLATOR
RV111
375 fH VCO
IC103
9
16
8
1
RV110
ATF BALANCE
IC104
12
1
13
48
24
37
25
36
RV109
CARRIER BALANCE
FL102
CHROMA EMPHASIS fo
IC105
12
1
13
48
24
37
25
36
REC C RF TRAP
LV102
CN009
8
1
LV103
RV113
GCA GAIN
RV112
fH VCO
RV107
C COMB AGC
DELAY LINE
IC102
36
25
37
24
48
13
1
12
IC101
12
1
13
48
24
37
25
36
RV101
VIDEO OUT LEVEL
RV102
SYNC AGC
RV104
AC CLIP
TP121
TP108
RV108
Y COMB AGC
RV103
Y FM CARRIER FREQUENCY
RV105
Y FM DEVIATION
RV106
PB Y LEVEL
CN104
10
CN005
1
10
CN006
1

SK-8 Board (Solder Side)

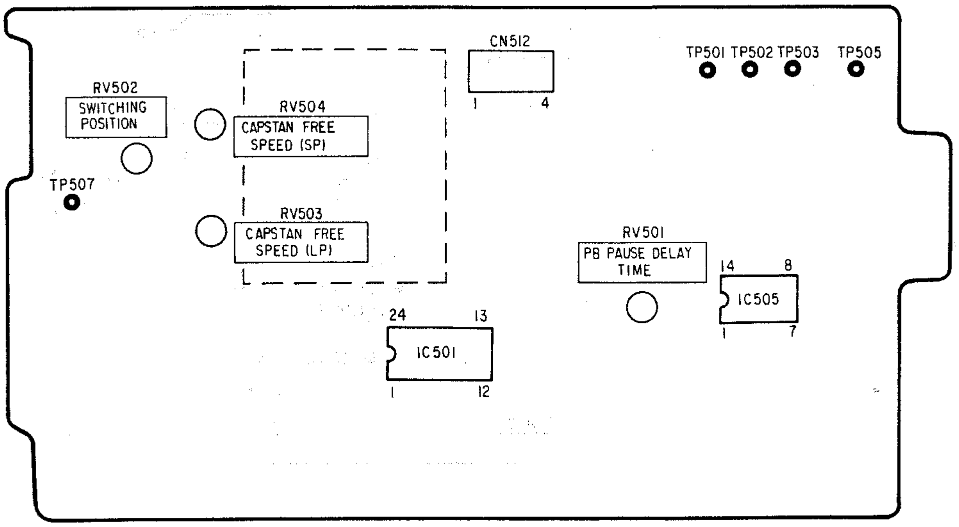


IC601
51
33
52
32
64
20
1
19
IC603
10
1
11
20
IC605
14
8
1
7
TP603
IC602
16
9
1
8
TP604
CN604
10
1
CN603
10
1
CN602
10
1
CN601
10
1

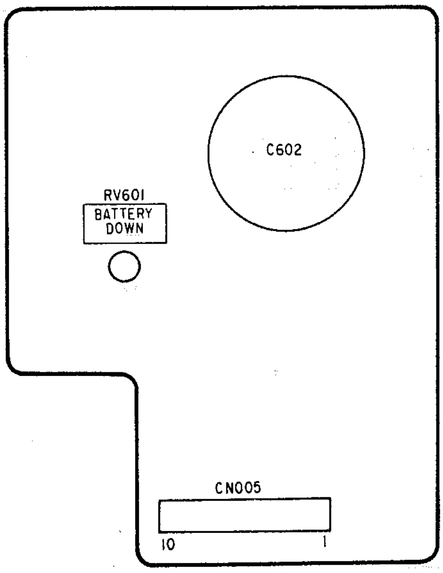
AR-2 Board (Component Side)


RV102
PB FREQUENCY CARACTERISTIC (CH1)
LV101
PB Y TRAP
CN112
1
4
TP104
RV101
REC Y REC CURRENT
TP101
TP102
RV401
AFM DEVIATION
24
13
25
12
IC101
48
37
36
RV105
REC C REC CURRENT
1
RV402
AFM CARRIER FREQUENCY
IC401
1
36
37
48
RV103
REC ATF REC CURRENT (CH2)
TP103
RV106
PB FREQUENCY CARACTERISTIC
12
25
13
24
RV104
AFM REC CURRENT
8
CN009
1
8
CN008
1

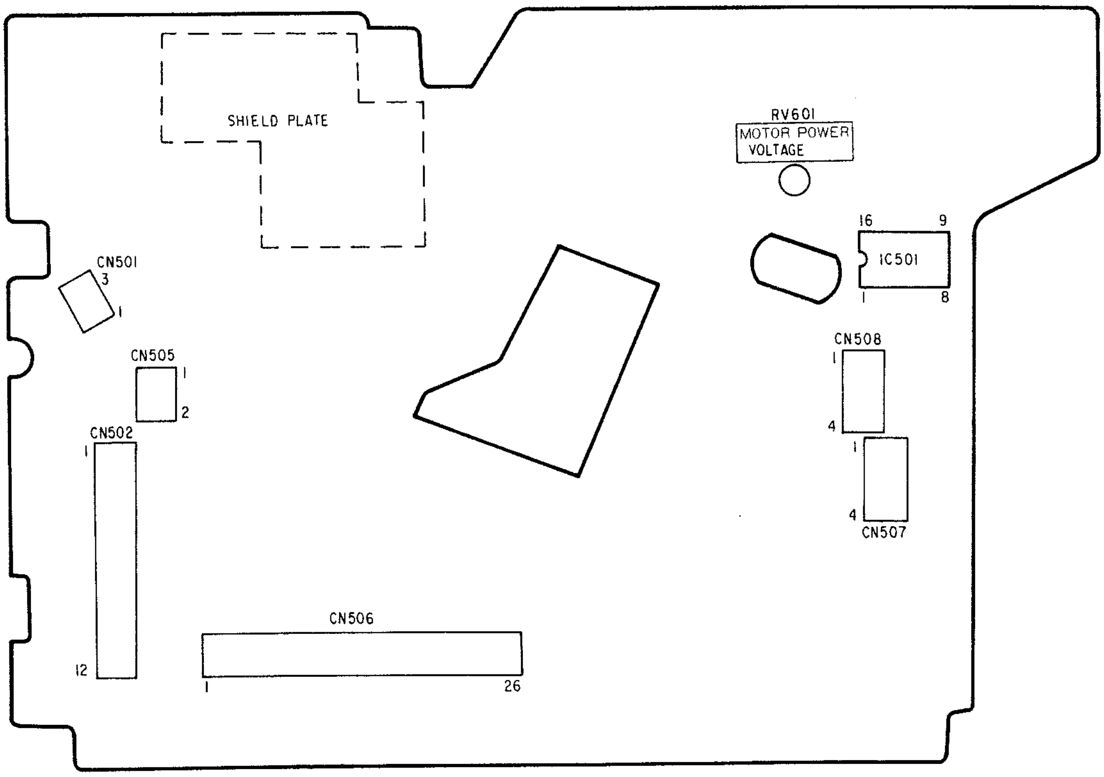
SV-14 Board (Solder Side)


CN512
1
4
TP501
TP502
TP503
TP505
RV502
SWITCHING POSITION
RV504
CAPSTAN FREE SPEED (SP)
TP507
RV503
CAPSTAN FREE SPEED (LP)
RV501
PB PAUSE DELAY TIME
14
8
IC505
1
7
24
13
IC501
1
12

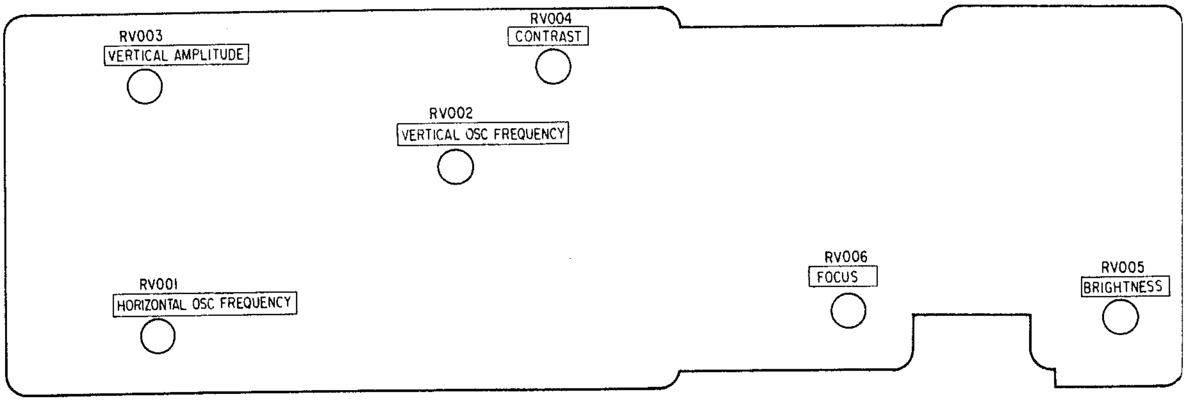
HS-5 Board (Solder Side)


C602
RV601
BATTERY DOWN
CN005
10
1

MC-8 Board (Solder Side)


SHIELD PLATE
RV601
MOTOR POWER VOLTAGE
16
9
IC501
1
8
CN501
3
1
CN505
1
2
CN502
1
12
CN508
1
4
1
4
CN507
CN506
1
26

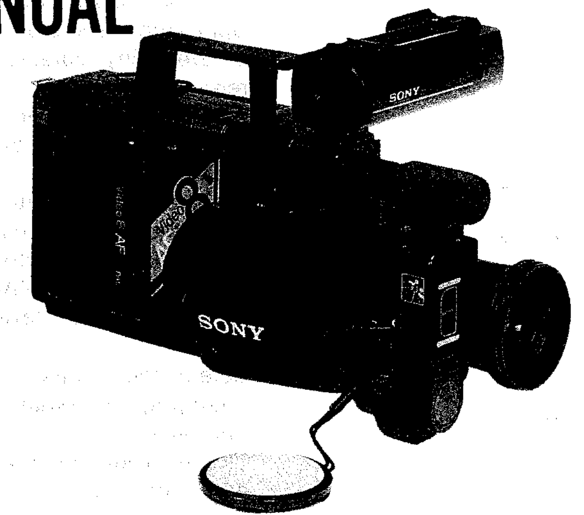
VF-4 Board (Component Side)


RV003
VERTICAL AMPLITUDE
RV004
CONTRAST
RV002
VERTICAL OSC FREQUENCY
RV001
HORIZONTAL OSC FREQUENCY
RV006
FOCUS
RV005
BRIGHTNESS

CCD-V7AF-E

SERVICE MANUAL

AEP Model
UK Model



AF
Auto Focus
Video 8

May, 1986

The circuits and mechanical structure of CCD-V7AF-E are slmost identical to those of CCD-V8AF-E. This manual contains only the difference. Refer to the CCD-V8AF-E Service Manual for related information not contained in this manual.

SPECIFICATIONS

System

Video recording system	Rotary two heads, Helical scanning FM system
Audio recording system	Rotary head, FM system
Video signal	PAL colour, CCIR standards
Usable cassette	8mm video format cassette
Tape speed	SP: Approx. 20.051 mm/sec. LP: Approx. 10.058 mm/sec.
Recording or playback time	SP: 90 min. (P5–90) LP: 180 min. (P5–90)
Fast forward time	Approx. 3 min.
Image device	CCD (Charge Coupled Device)
Viewfinder	Electric viewfinder VF-235/236 (1″ black and white)
Lens	Combined 6 × power zoom lens f = 12–72 mm, F1.4 with macro Filter diameter: 52 mm
Auto focus system	Infrared auto-focus
Colour temperature	Preset values: ☼ 5,800°K 💡 3,200°K Auto: From the light at a tungsten lamp to the light on a slightly overcast day.
Minimum illumination	22 lux (F1.4) (2 footcandles)
Illumination range	22 lux–100,000 lux (2–9,294 footcandles)
Recommended illumination	More than 300 lux (28 footcandles)
Aperture correction	Approx. ±1.5

Input and output connector

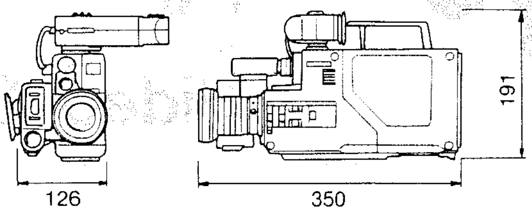
MULTI CONNECTOR	24-pin Video output: 1 Vp-p, 75 ohms unbalanced, sync negative Audio output: −6 dBs, output impedance less than 1 kilohms
Earpiece jack	Minijack, 8-ohm impedance
Remote jack	5-pin connector
MIC jack	Minijack, −60 dBs, low impedance

– Continued on next page –

8 VIDEO CAMERA RECORDER
SONY®

General

Power requirements	
	MULTI connector 8.5 V Battery compartment 6 V/8.5 V
Power consumption	
	7.7W (camera recording) including the viewfinder
Installation	Horizontally, vertically
Operating temperature	
	0°C to 40°C (32°F to 104°F)
Storage temperature	
	−20°C to +60°C (−4°F to +140°F)
Dimensions	Approx. 126 × 191 × 350 mm (w/h/d) (5 × $7^{5}/_{8}$ × $13^{7}/_{8}$ in.)



Weight	Approx. 2.3 kg (5 lb 1 oz) excluding the battery and cassette Approx. 2.6 kg (5 lb 13 oz) including the battery and cassette
Microphone	Electret condenser microphone, uni-directional monaural type

Accessories supplied

Shoulder strap (1)
Sticker (1)

Design and specifications are subject to change without notice.

CLOSE-UPS (Macro)

Use of the macro function allows the camera to approach the subject almost to the lens, so that even tiny objects can literally fill the screen for dramatic close-up effects. This allows you to discover aspects of the subject that would otherwise be "impossible".

1. Set the FOCUS switch to MAN.
2. To remove the lens hood, turn it in a counterclockwise direction.
3. While keeping the MACRO set button pressed, turn the zoom lever to the MACRO position.
4. Select the subject size in the scene by changing the distance between the subject and lens.
   The recorder can move to a subject as close as 6 mm (7/32 in.) from the lens surface.
5. Focus by turning the manual zoom lever.

Notes on macro shooting

- When shooting in macro, the depth of field is very shallow, so pay attention to focus. To keep the subject in focus, use a tripod or monopod.
- Zooming is not possible during macro recording. To change the size of the subject, move the lens closer or further away from it.
- Auto focusing does not function during macro recording.

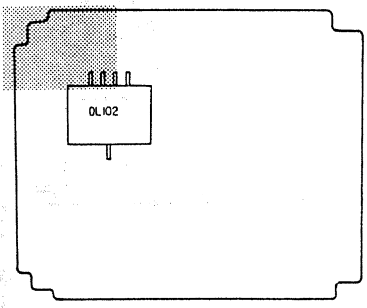
There is a partial difference in the circuits of both VI-7 board and AR-2 board between those of CCD-V7AF-E and CCD-V8AF-E.

SECTION 4
SCHEMATIC DIAGRAM AND PRINTED WIRING BOARDS

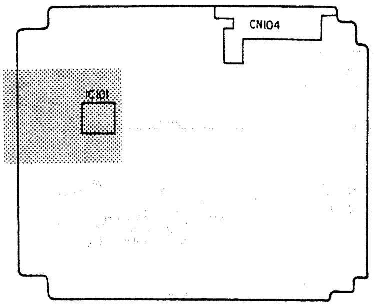
VI-7 PRINTED WIRING BOARD

There are no C133,R289 and pins ⑩ and ㉒ of CN104 provided with the circuit on the VI-7 board of CCD-V7AF-E against that of CCD-V8AF-E.

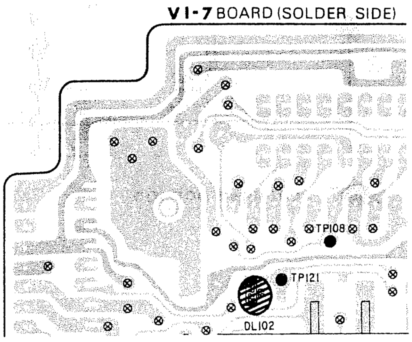
VI-7 BOARD (SOLDER SIDE)



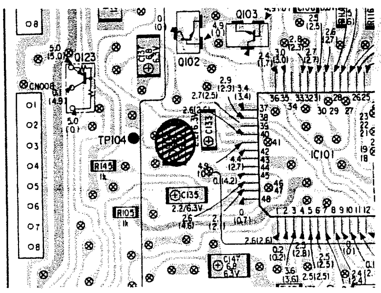
VI-7 BOARD (COMPONENT SIDE)


CN104
IC101

(Page 104)

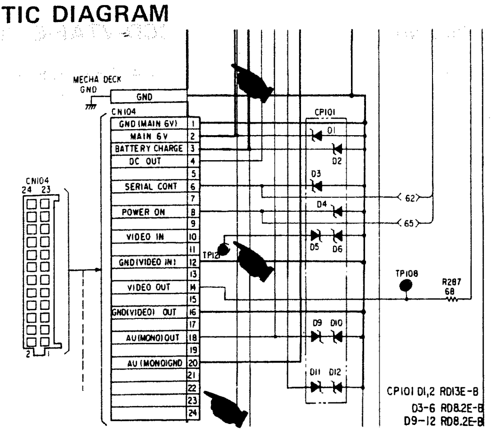

VI-7 BOARD (SOLDER SIDE)
TP108
TP121
DL102

(Page 105)

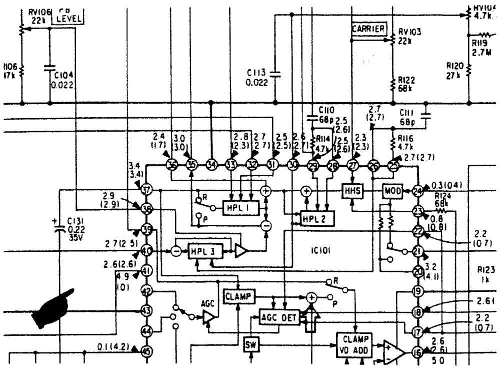

Q103
Q102
Q123
CN008
TP104
IC101
R145
R105
C135
C133
C147

▨ : no mount

VI-7 SCHEMATIC DIAGRAM
(Page 110 I-11)


MECHA DECK GND
GND
CN104
GND (MAIN 6V)
MAIN 6V
BATTERY CHARGE
DC OUT
SERIAL CONT
POWER ON
VIDEO IN
GND(VIDEO IN)
VIDEO OUT
GND(VIDEO) OUT
AU(MONO)OUT
AU (MONO)GND
CN104
CP101
D1
D2
D3
D4
D5
D6
D9
D10
D11
D12
TP108
R287
68
CP101 D1,2 RD13E-B
D3-6 RD8.2E-B
D9-12 RD8.2E-B

(Page 111 D-13) ☛ :changed portion


RV106
LEVEL
C104
0.022
C113
0.022
CARRIER
RV103
22k
R122
68k
C110
68p
C111
68p
R116
4.7k
HPL 1
HPL 2
HHS
MOD
HPL 3
IC101
CLAMP
AGC
AGC DET
SW
CLAMP
VD ADD
C131
0.22
35V
R124
68k
R123
1k
R119
2.7M
R120
27k

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

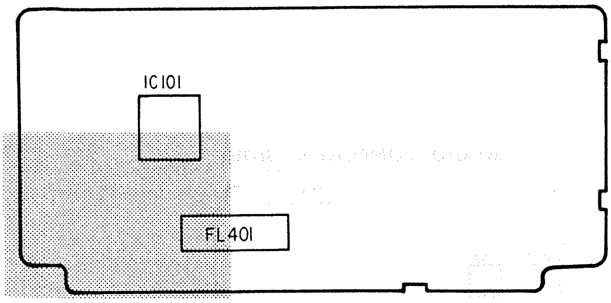
DEFERENCE LIST

Ref.No. and Description	CCD-V8AF-E Part No.	CCD-V7AF-E Part No.
VI-7 BOARD, COMPLETE	*A-7060-260-A	*A-7060-526-A
C133 TANTAL, CHIP 2.2MF 10% 6.3V	1-135-099-00	————
CN104 SOCKET, CONNECTOR	1-562-582-11 [Pin ⑩ : VIDEO IN Pin ㉒ : AU (MONO) IN]	1-563-415-11 [Pin ⑩ : NC Pin ㉒ : NC]
R289 METAL CHIP 39 5% 1/10W	1-216-015-00	————

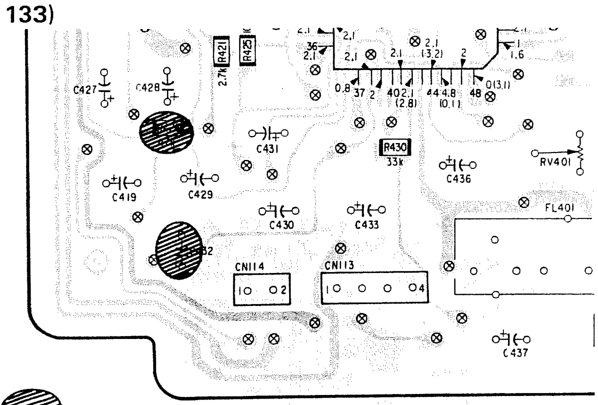
AR-2 PRINTED WIRING BOARD

There are no C432 and R426 provided with the circuit on the AR-2 board of CCD-V7AF-E against that of CCD-V8AF-E.

AR-2 BOARD (COMPONENT SIDE)


IC101
FL401

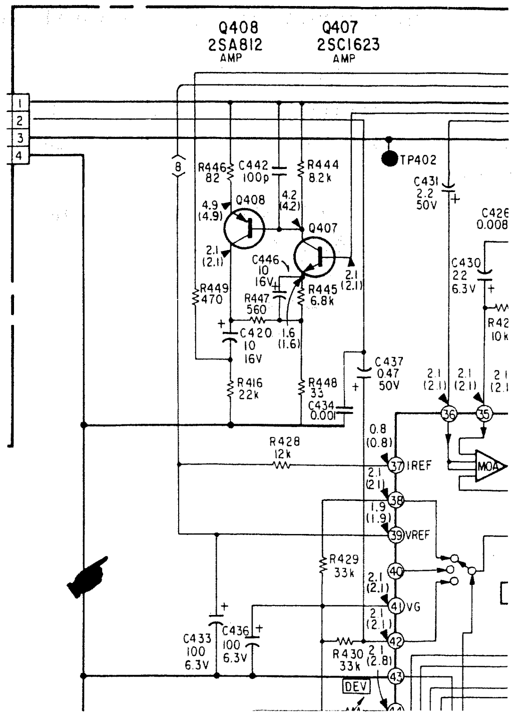
(P 133)


C427
C428
R421
R425
2.7k
C431
R430
33k
C436
RV401
C419
C429
C430
C433
FL401
CN114
CN113
C437

▨ : no mount

AR-2 SCHEMATIC DIAGRAMS

(P136 D-12)


Q408
2SA812
AMP
Q407
2SC1623
AMP
TP402
R446 82
C442 100p
R444 8.2k
Q408
Q407
C431 2.2 50V
C426 0.008
C430 22 6.3V
C446 10 16V
R449 470
R447 560
R445 6.8k
C420 10 16V
C437 0.47 50V
R416 22k
R448 33
C434 0.001
R428 12k
IREF
VREF
VG
R429 33k
C433 100 6.3V
C436 100 6.3V
R430 33k
DEV
MOA

☛ : changed portion

DEFERENCE LIST

Ref.No. and Description	CCD-V8AF-E Part.No.	CCD-V7AF-E Part.No.
AR-2 BOARD, COMPLETE	*A-7060-245-A	*A-7060-528-A
C432 ELECT 0.47MF 20% 50V	1-124-253-00	————
R426 METAL CHIP 47K 5% 1/10W	1-216-089-00	————

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

5-1 COVER ASSEMBLY (Page 145)

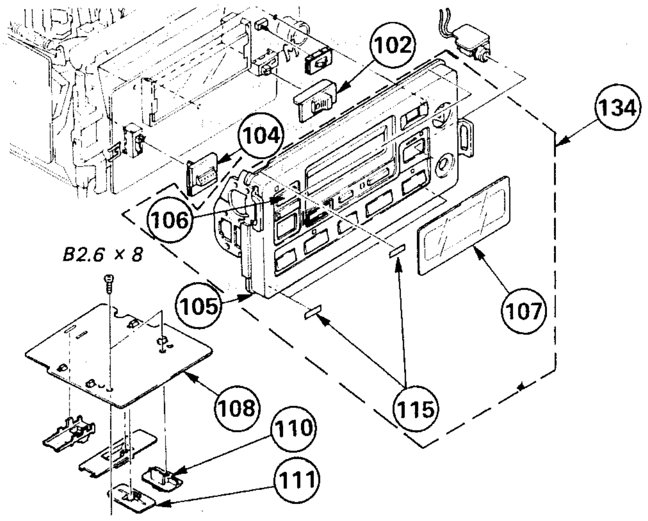
No.	Description	CCD-V8AF-E Part No.	CCD-V7AF-E Part No.	Remark
1	LID ASSY, CASSETTE	X-3686-674-1	X-3686-776-1	2
3	LABEL, MODEL NUMBER (AEP, UK MODEL)	*3-693-287-01	————	
	LABEL, MODEL NUMBER (W.G. MODEL)	*3-693-286-01	————	
	LABEL, MODEL NUMBER (AEP MODEL)	————	*3-699-571-01	
	LABEL, MODEL NUMBER (UK MODEL)	————	*3-699-572-01	
5	COVER ASSY, CAMERA HEAD	X-3686-684-1	————	6
6	FOOT, RUBBER	3-688-931-01	————	

5-2 CABINET (LEFT) ASSEMBLY (Page 146)

No.	Description	CCD-V8AF-E Part No.	CCD-V7AF-E Part No.	Remark
56	CABINET (LEFT) SUB ASSY	X-3686-651-1	X-3686-771-1	51, 52, 57, 58 64, 66, 71

5-3 CONTROL PANEL, CABINET (UPPER, RIGHT) ASSEMBLY (Page 147)

No.	Description	CCD-V8AF-E Part No.	CCD-V7AF-E Part No.	Remark
105	PANEL, CONTROL	3-686-981-21	————	
112	CABINET (RIGHT) SUB ASSY	X-3686-666-1	X-3686-770-1	113
134	KEY ASSY, VTR	————	X-3686-775-1	



5-4 MAIN BOARD ASSEMBLY (Page 148)

No.	Description	CCD-V8AF-E Part No.	CCD-V7AF-E Part No.	Remark
164	AR-2 BOARD, COMPLETE	*A-7060-245-A	*A-7060-528-A	
166	VI-7 BOARD, COMPLETE	*A-7060-260-A	*A-7060-526-A	168, 169

5-10 CAMERA BLOCK ASSEMBLY (Page 154)

No.	Description	CCD-V8AF-E Part No.	CCD-V7AF-E Part No.	Remark
451	CAP ASSY, HOOD	*X-3686-677-1	*X-3686-808-1	
454	LENS, ZOOM	1-547-183-11	1-547-208-11	455–458, 460, 462, 464, 465
457	ZOOM RING UNIT	3-707-226-01	3-707-267-01	

5-11 EVF ASSEMBLY (Page 155)

No.	Description	CCD-V8AF-E Part No.	CCD-V7AF-E Part No.	Remark
501	EVF (VF-206) (AEP, W.G. MODEL)	A-7019-007-A	———	502 - 523
	EVF (VF-208) (UK MODEL)	A-7019-001-A	———	503 - 523
	EVF (VF-235) (AEP MODEL)	———	A-7019-036-A	502 - 523
	EVF (VF-236) (UK MODEL)	———	A-7019-037-A	502 - 523
516	CABINET (LOWER) ASSY, EVF	X-3686-662-1	X-3686-769-1	521, 523
517	LABEL, MODEL NUMBER, EVF (AEP, W.G. MODEL)	*3-688-962-01	———	
	LABEL, MODEL NUMBER, EVF (UK MODEL)	*3-693-251-01	*3-699-575-01	
	LABEL, MODEL NUMBER, EVF (AEP MODEL)	———	*3-699-574-01	

ACCESSORIES AND PACKING MATERIALS (Page 185)

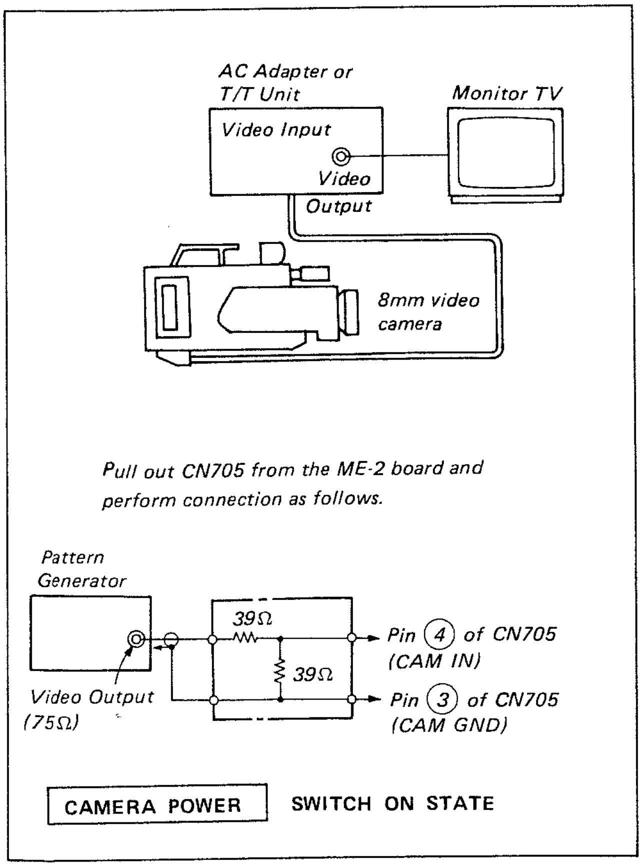
No.	Description	CCD-V8AF-E Part No.	CCD-V7AF-E Part No.	
	CUSHION (UPPER)	*3-696-031-01	*3-699-604-01	
	CUSHION (LOWER)	*3-696-032-01	*3-699-605-01	
	MANUAL, INSTRUCTION	3-760-728-11	3-765-311-11	
	MANUAL, INSTRUCTION (AEP, W.G. MODEL)	3-760-728-41	———	
	MANUAL, INSTRUCTION (AEP, W.G. MODEL)	3-760-728-51	———	
	MANUAL, INSTRUCTION (AEP MODEL)	———	3-765-311-41 (FRENCH, GERMAN, DUTCH)	
		———	3-765-311-51 (SPANISH, SWEDISH, ITALIAN)	

SECTION 7
ADJUSTMENTS

3. VIDEO SECTION ADJUSTMENT

[Equipment Connection]

Unless otherwise specified, adjustment is made by connecting the measuring instruments as shown below.


AC Adapter or
T/T Unit
Video Input
Video
Output
Monitor TV
8mm video
camera
Pattern
Generator
Video Output
(75Ω)
39Ω
39Ω
Pin ④ of CN705
(CAM IN)
Pin ③ of CN705
(CAM GND)

Pull out CN705 from the ME-2 board and perform connection as follows.

CAMERA POWER SWITCH ON STATE

Fig. 3-1

Setting up during adjustment

Video signals output by an pattern generator are used as adjustment signals when adjusting the video section, and these video output signals should be within the required standard. Connect an oscilloscope to TP104 (CAM IN) on the VI-7 Board. Check that the amplitudes of video signal SYNC signals, of picture portions, and of burst signals are flat at approximately 0.3, 0.7, and 0.3V, respectively, and that the level ratio of the burst signals and "red" signals are 0.30:0.66.

Fig. 3-2 shows video signals (colour bars) used in adjusting the video section.

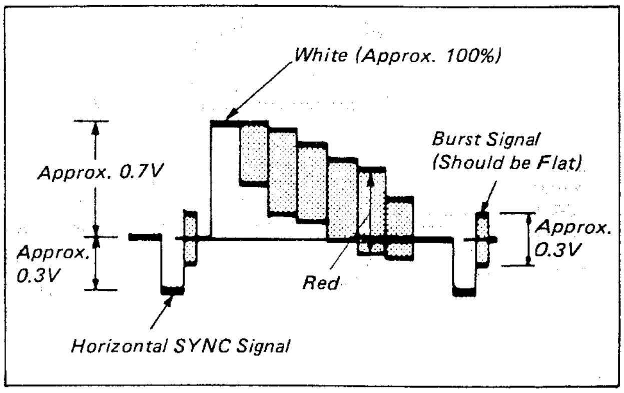
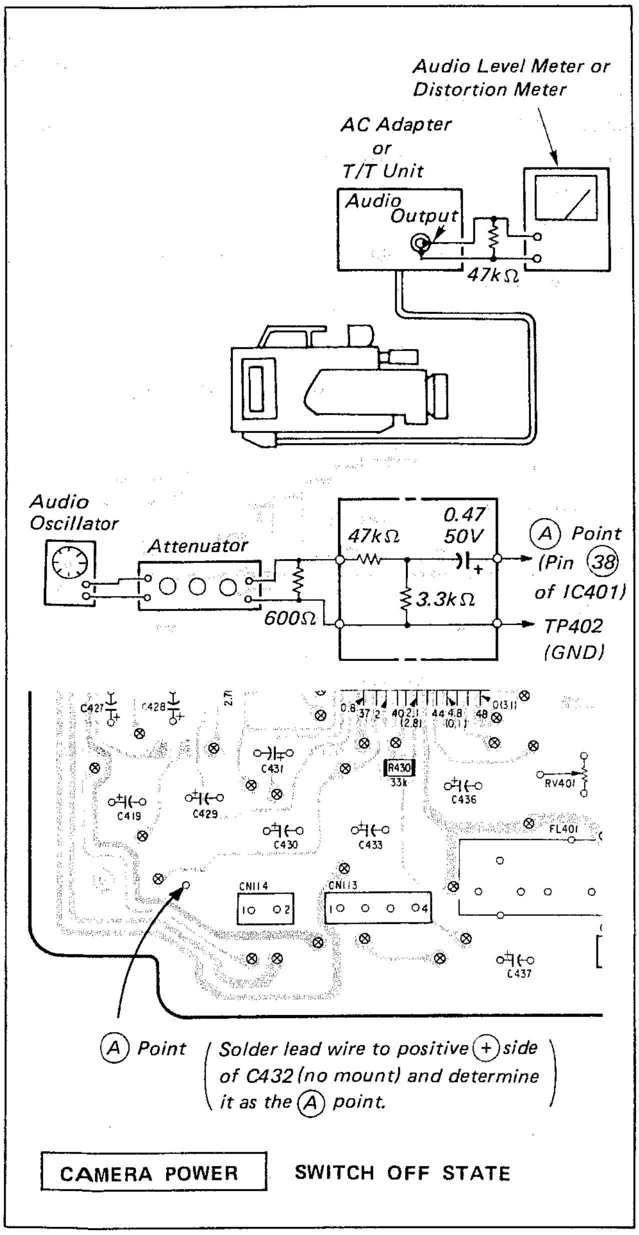

White (Approx. 100%)
Burst Signal
(Should be Flat)
Approx. 0.7V
Approx.
0.3V
Approx.
0.3V
Red
Horizontal SYNC Signal

Fig. 3-2 Pattern Generator Colour Bar Signals

3-5. AUDIO SYSTEM ADJUSTMENT

Connection of audio measuring instruments

Connect audio-system measuring instruments as shown below in addition to video system measuring instruments.


Audio Level Meter or Distortion Meter
AC Adapter or T/T Unit
Audio Output
47kΩ
Audio Oscillator
Attenuator
600Ω
47kΩ
0.47 50V
3.3kΩ
Ⓐ Point (Pin ㊳ of IC401)
TP402 (GND)
C427
C428
C431
R430 33k
C436
RV401
FL401
C419
C429
C430
C433
CN114
CN113
C437

Ⓐ Point (Solder lead wire to positive ⊕ side of C432 (no mount) and determine it as the Ⓐ point.)

CAMERA POWER SWITCH OFF STATE

Fig. 3-29

CCD-V8AF-E

SONY®
SERVICE MANUAL

AEP Model
UK Model
West Germany Model

September, 1986

SUPPLEMENT-1

Subject: Circuit modifications

This Service Manual is revised edition of Schematic Diagram, Printed Wiring Boards, Repair Parts List and Adjustment according to the changes in the following circuits.

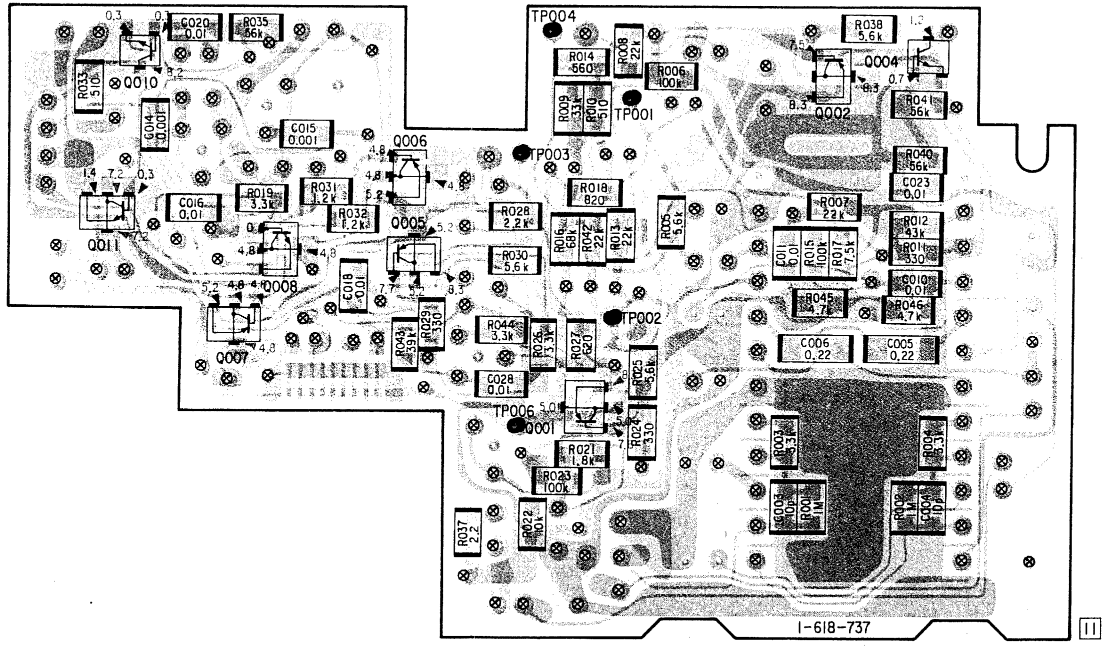
1) The autofocusing circuit, which consists of AZ-2 and PA-7 Boards has been changed to AP-1 and AP-3 Boards.

2) The HS-5 Board and the circuit for DC/DC converter (DR901) in this section have been made into one Board to become HD-7 Board.

4-2. AP-1, AP-3 (AUTO FOCUS PROCESS) PRINTED WIRING BOARDS

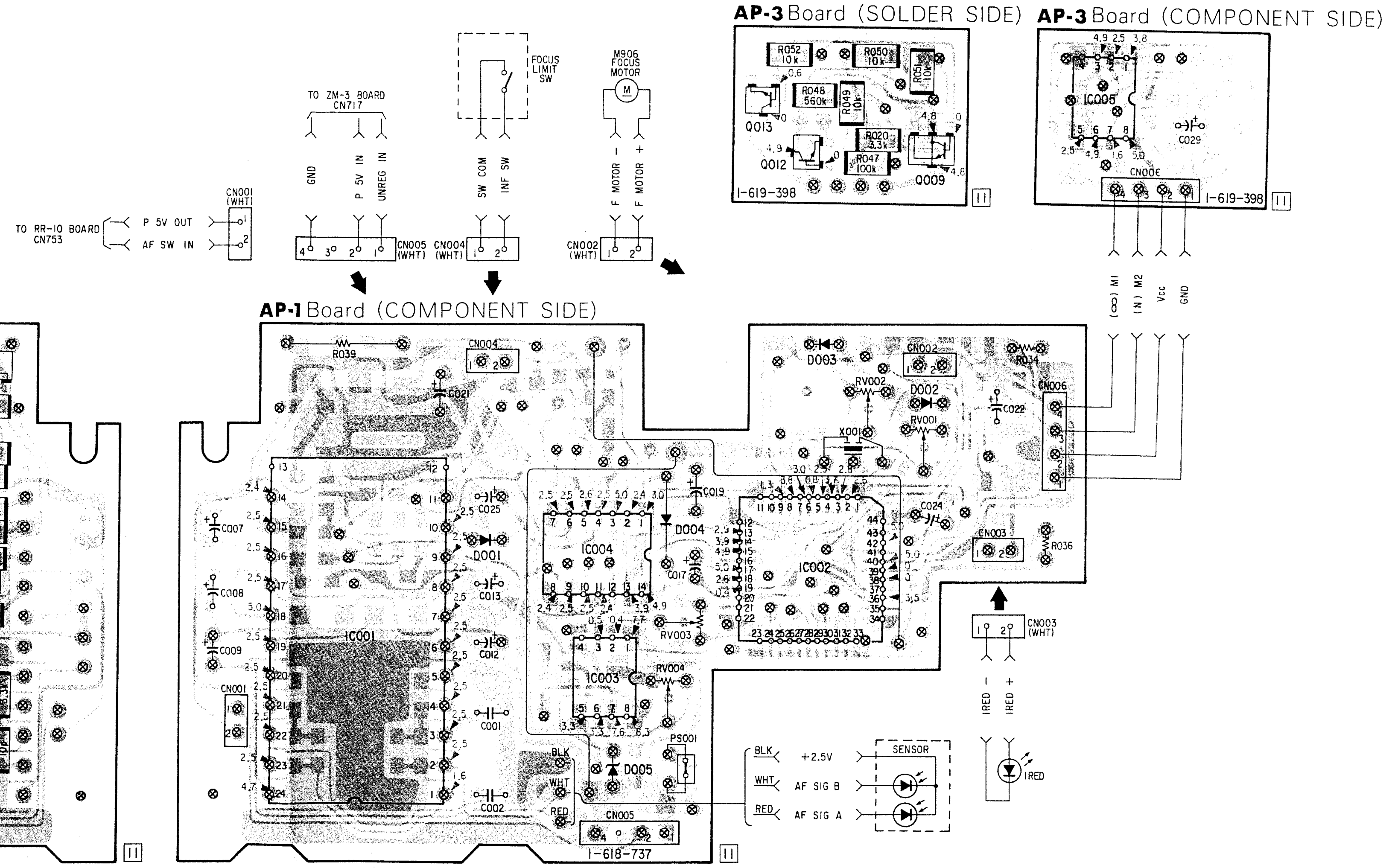
– Ref. No. AP-1, AP-3 Boards: 5,000 series –

AP-1 Board (SOLDER SIDE)


TP004
TP001
TP003
TP002
TP006
Q001
Q002
Q004
Q005
Q006
Q007
Q008
Q010
Q011
R033 510k
C020 0.01
R035 56k
C004 0.001
C015 0.001
C016 0.01
R019 3.3k
R031 1.2k
R032 1.2k
C018 0.01
R043 3.9k
R029 330
R044 3.3k
R030 5.6k
C028 0.01
R028 2.2k
R018 820
R014 560
R009 33k
R008 22k
R006 100k
R038 5.6k
R041 56k
R040 56k
C023 0.01
R007 22k
R012 3.3k
R011 330
C010 0.01
R045 4.7k
R046 4.7k
C006 0.22
C005 0.22
R021 1.8k
R023 100k
R022 10k
R037 2.2
R024 330
R025 5.6k
R003 3.3k
R004 1M
R001 1M
C011 0.01
R015 100k
R017 7.5k
1-618-737

AP-3 Board (SOLDER SIDE) **AP-3** Board (COMPONENT SIDE)

AP-1 Board (COMPONENT SIDE)


TO ZM-3 BOARD CN717
GND
P 5V IN
UNREG IN
FOCUS LIMIT SW
SW COM
INF SW
M906 FOCUS MOTOR
F MOTOR –
F MOTOR +
TO RR-10 BOARD CN753
P 5V OUT
AF SW IN
CN001 (WHT)
CN005 (WHT)
CN004 (WHT)
CN002 (WHT)
R052 10k
R050 10k
R048 560k
R049 10k
R051 10k
R020 3.3k
R047 100k
Q013
Q012
Q009
IC006
C029
CN006
1-619-398
(∞) M1
(N) M2
Vcc
GND
R039
C021
C007
C008
C009
IC001
C025
D001
C013
C012
C001
C002
IC004
IC003
IC002
D004
C017
C019
RV003
RV004
D005
PS001
CN005
D003
RV002
D002
RV001
X001
C022
C024
CN003
R036
R034
CN003 (WHT)
IRED –
IRED +
IRED
BLK
WHT
RED
+2.5V
AF SIG B
AF SIG A
SENSOR
1-618-737

When indicating parts by reference number, please include the board name.

Caution:

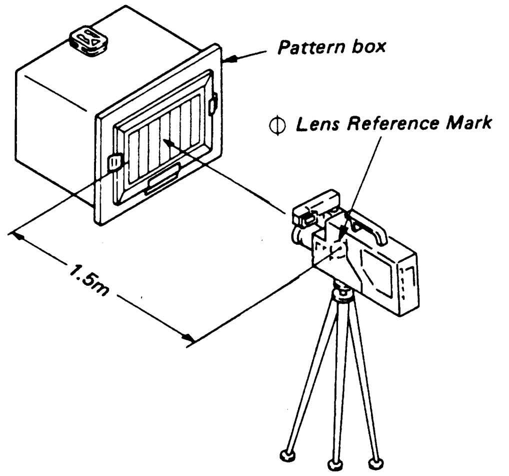
Pattern face side: (Solder Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the pattern face are indicated.

- ⊗ : Through hole.
- ▨ : Pattern from the side which enables seeing.
- ▨ : B+ pattern from the side which enables seeing.
- ▨ : Pattern of the rear side.

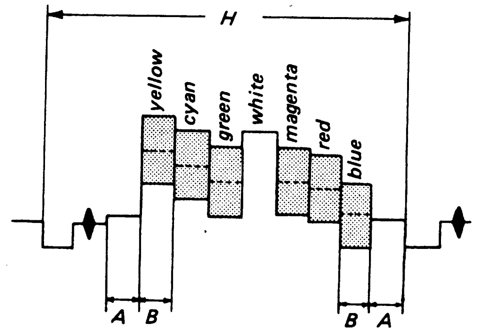
Note:

- Caution when replacing tip parts.
  New parts must be attached after removal of tip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the head.
- All resistors are in ohms, 1/10W unless otherwise noted.
- All capacitors are in μF (p:pF) unless otherwise noted.
  50V or less are not indicated except for electrolytic capacitors.
- All variable and semi fixed resistors have characteristic curve B, unless otherwise noted.
- ▭ : panel designation.
- ▭ : Nonflammable resistor
- —— : B+ bus.
- ▭ : adjustment for repair.
- Voltage and waveform measuring conditions:
  - (1) Sample object: Pattern box color bars.
  - (2) Voltage values: Relative to ground, measured with a DC digital multimeter (impedance 10M-ohm or more).

1. **Connection**


Pattern box
Lens Reference Mark
1.5m

2. **Adjust the zooming of camera and the tripod so that the output waveform of Fig. a and the picture of Fig. b can be obtain.**


H
yellow
cyan
green
white
magenta
red
blue
A
B
B
A

A = B

Fig. a Camera output waveform of TP711 on ME-2 board

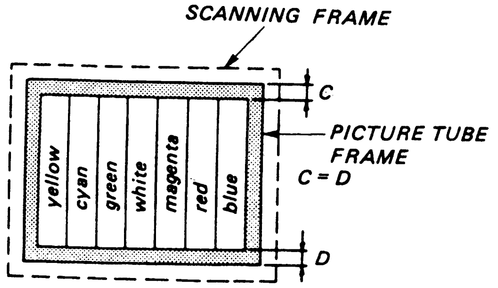
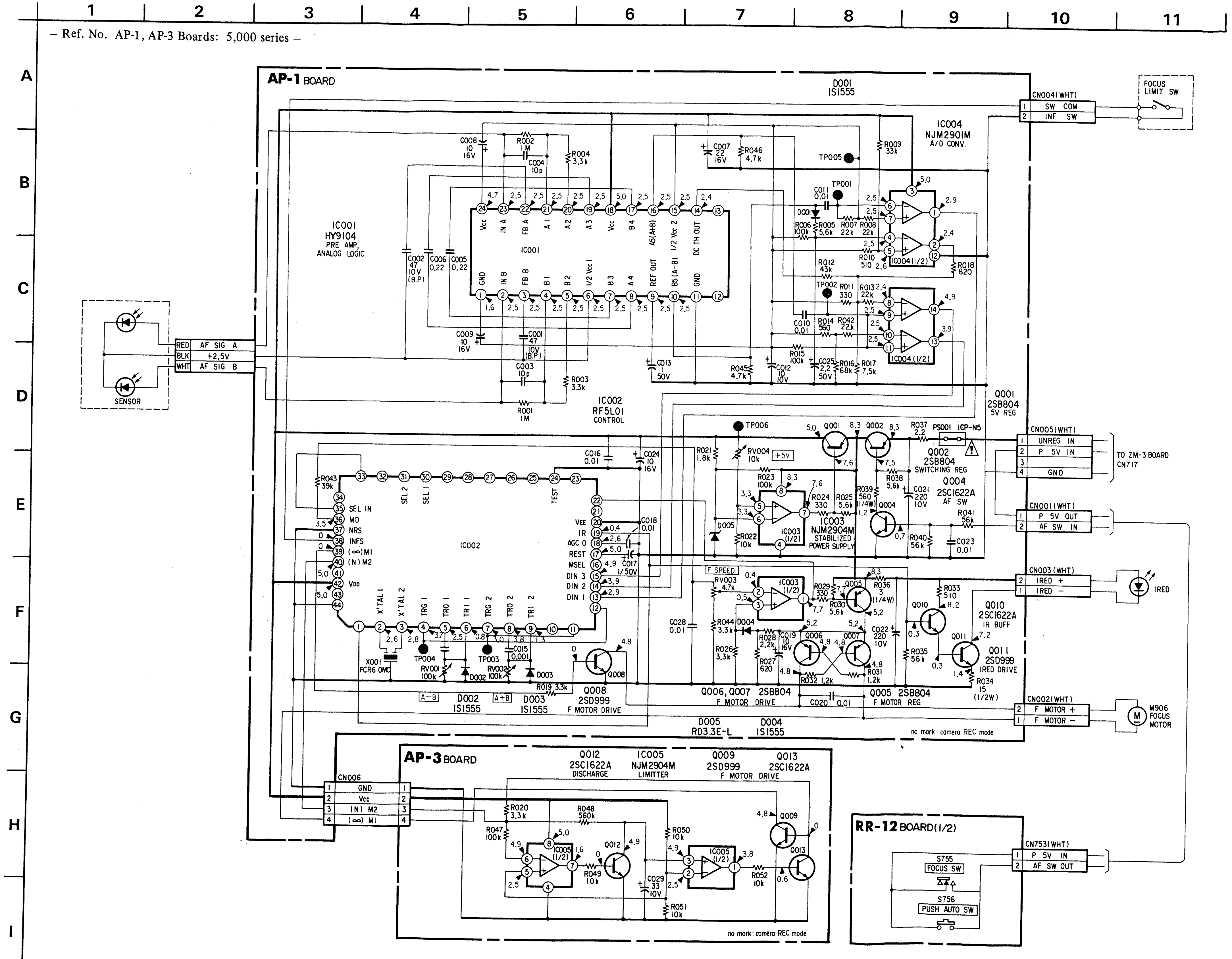

SCANNING FRAME
C
PICTURE TUBE FRAME
C = D
D
yellow
cyan
green
white
magenta
red
blue

Fig. b Picture of TV monitor screen

AP-1, AP-3 (AUTO FOCUS PROCESS) SCHEMATIC DIAGRAM

– Ref. No. AP-1, AP-3 Boards: 5,000 series –


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
AP-1 BOARD
SENSOR
RED AF SIG A
BLK +2.5V
WHT AF SIG B
IC001 HY9104 PRE AMP, ANALOG LOGIC
IC002 RF5L01 CONTROL
IC004 NJM2901M A/D CONV.
D001 1S1555
FOCUS LIMIT SW
CN004(WHT)
SW COM
INF SW
Q001 2SB804 5V REG
Q002 2SB804 SWITCHING REG
Q004 2SC1622A AF SW
IC003 NJM2904M STABILIZED POWER SUPPLY
PS001 ICP-N5
CN005(WHT)
UNREG IN
P 5V IN
GND
TO ZM-3 BOARD CN717
CN001(WHT)
P 5V OUT
AF SW IN
CN003(WHT)
IRED +
IRED −
IRED
Q010 2SC1622A IR BUFF
Q011 2SD999 IRED DRIVE
Q005 2SB804 F MOTOR REG
Q006, Q007 2SB804 F MOTOR DRIVE
Q008 2SD999 F MOTOR DRIVE
D002 1S1555
D003 1S1555
D005 RD3.3E-L
D004 1S1555
CN002(WHT)
F MOTOR +
F MOTOR −
M906 FOCUS MOTOR
X001 FCR6 OMC
TP001
TP002
TP003
TP004
TP005
TP006
RV001
RV002
RV003
RV004
F SPEED
no mark: camera REC mode
AP-3 BOARD
Q012 2SC1622A DISCHARGE
IC005 NJM2904M LIMITTER
Q009 2SD999 F MOTOR DRIVE
Q013 2SC1622A F MOTOR DRIVE
CN006
GND
Vcc
(N) M2
(∞) MI
no mark: camera REC mode
RR-12 BOARD(1/2)
CN753(WHT)
P 5V IN
AF SW OUT
S755 FOCUS SW
S756 PUSH AUTO SW

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

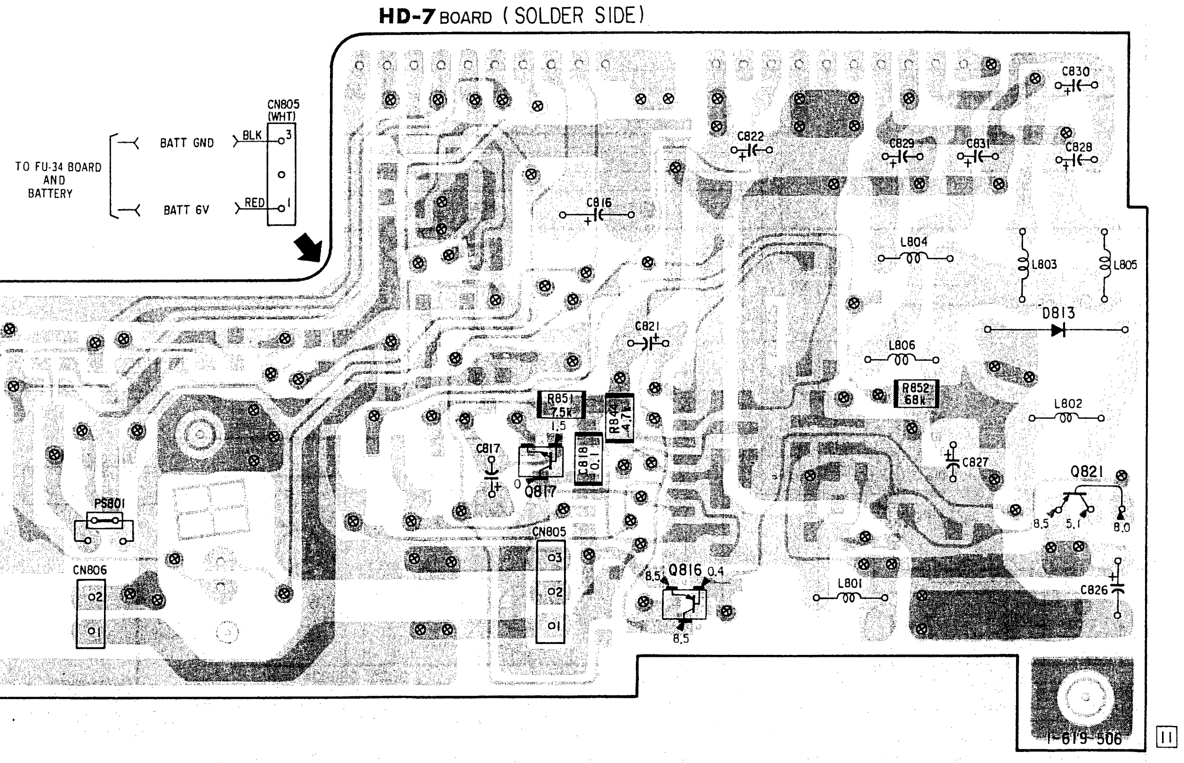
When indicating parts by reference number, please include the board name.

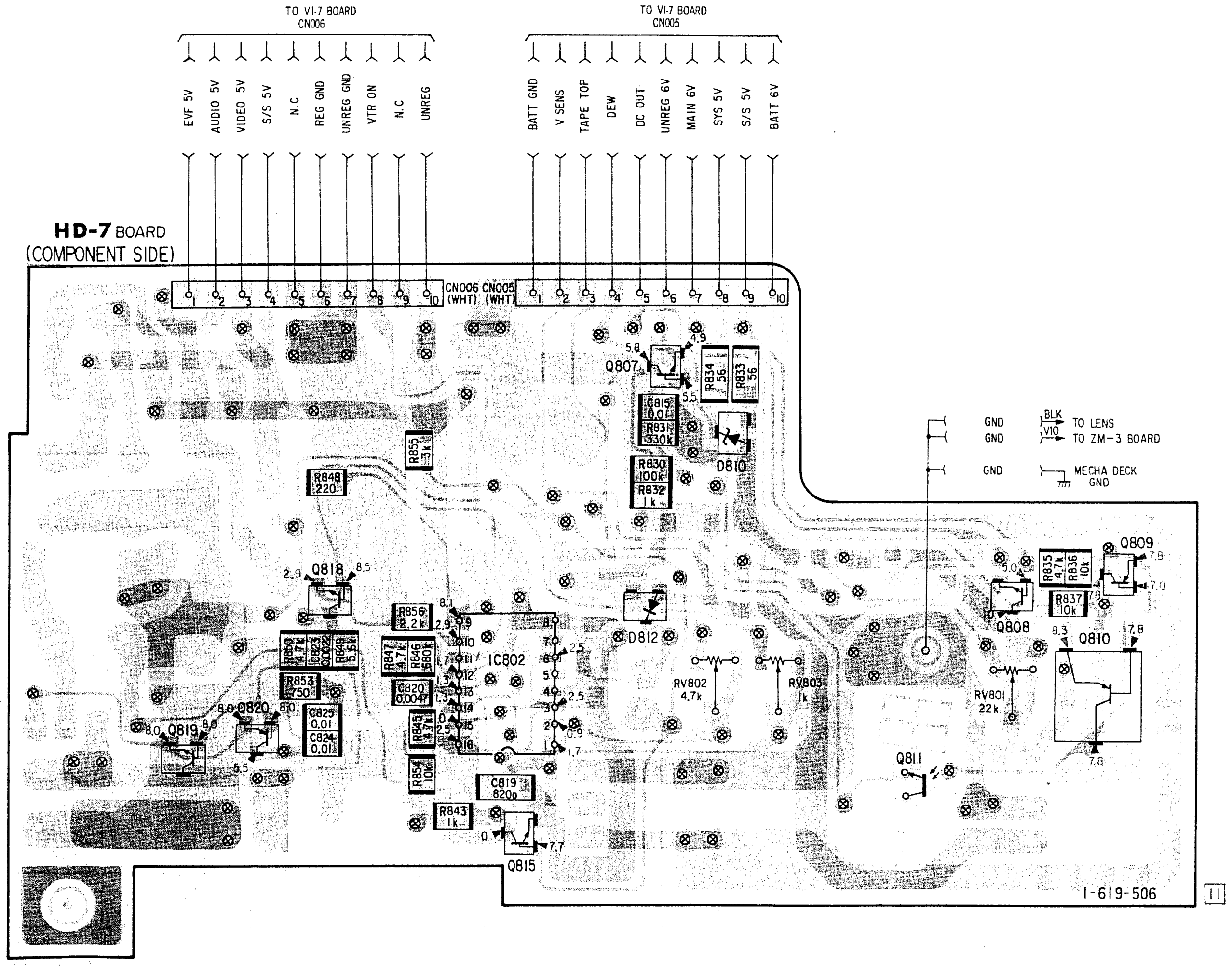
HD-7 (TAPE SENSOR, STABILIZER POWER SUPPLY) PRINTED WIRING BOARD

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

A B C D E F G H I J

– Ref. No. HD-7 Board: 9,000 series –


HD-7 BOARD (SOLDER SIDE)
TO FU-34 BOARD AND BATTERY
BATT GND
BATT 6V
BLK
RED
CN805 (WHT)
CN806
CN805
PS801
C816
C817
C821
C822
C826
C827
C828
C829
C830
C831
L801
L802
L803
L804
L805
L806
D813
Q816
Q817
Q821
R851 7.5k
R844 4.7k
C818 0.01
R852 68k
1-619-506


TO VI-7 BOARD CN006
EVF 5V
AUDIO 5V
VIDEO 5V
S/S 5V
N.C
REG GND
UNREG GND
VTR ON
N.C
UNREG
TO VI-7 BOARD CN005
BATT GND
V SENS
TAPE TOP
DEW
DC OUT
UNREG 6V
MAIN 6V
SYS 5V
S/S 5V
BATT 6V
HD-7 BOARD (COMPONENT SIDE)
CN006 (WHT)
CN005 (WHT)
GND
GND
GND
BLK
V10
TO LENS
TO ZM-3 BOARD
MECHA DECK GND
Q807
Q808
Q809
Q810
Q811
Q815
Q818
Q819
Q820
D810
D812
IC802
RV801 22k
RV802 4.7k
RV803 1k
R835 4.7k
R836 10k
R837 10k
R834 56
R833 56
R830 100k
R831 330k
R832 1k
C815 0.01
R855 3.3k
R848 220
R856 8.2k
R853 750
C825 0.01
C824 0.01
C819 820p
R843 1k
C820 0.0047
1-619-506

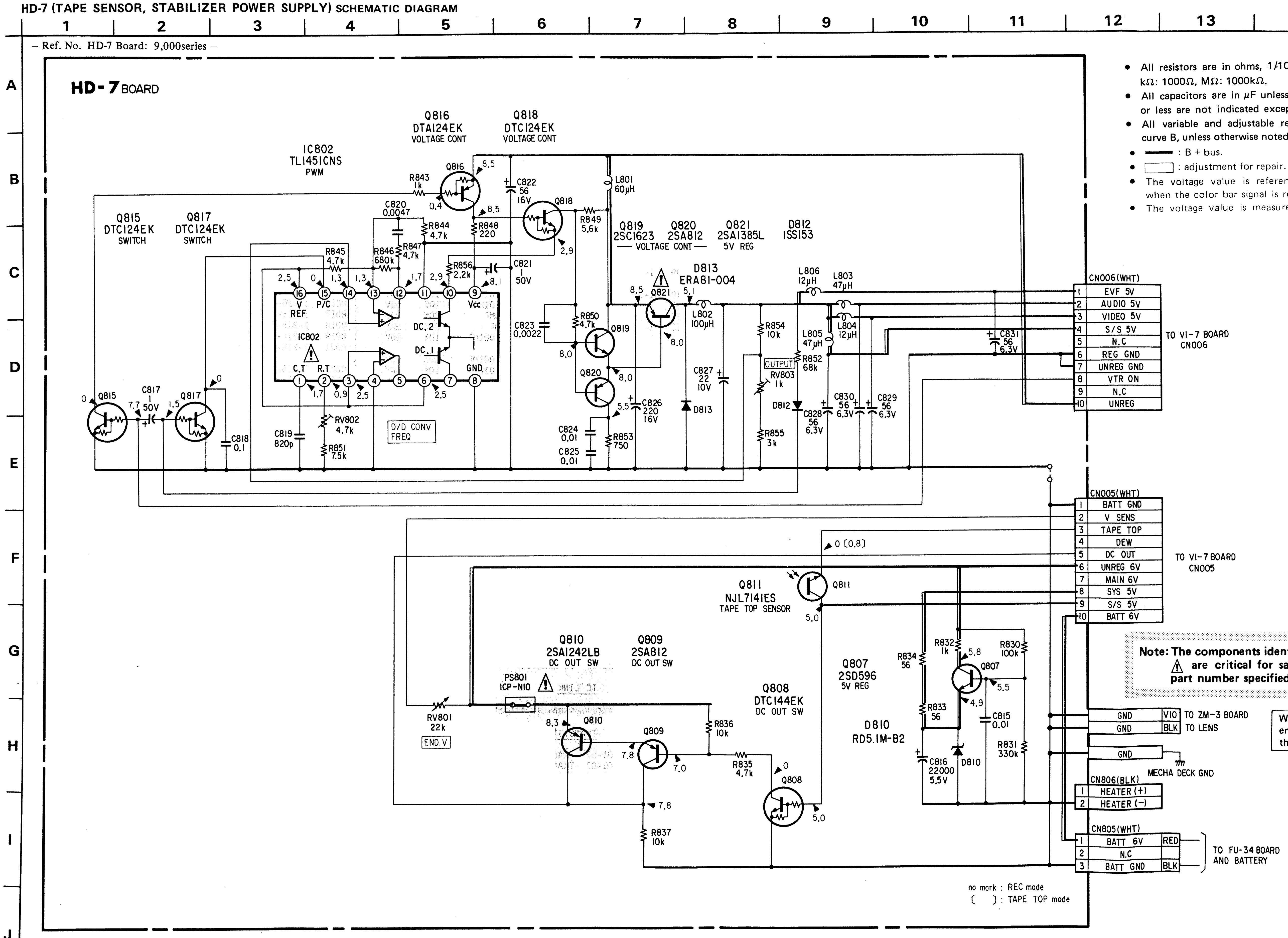
When indicating parts by reference number, please include the board name.

Caution:
Pattern face side: (Solder Side) Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side) Parts on the parts face side seen from the pattern face are indicated.

- ⊗ : Through hole.
- ▨ : Pattern from the side which enables seeing.
- ▨ : B+ pattern from the side which enables seeing.
- ▨ : Pattern of the rear side.

HD-7 (TAPE SENSOR, STABILIZER POWER SUPPLY) SCHEMATIC DIAGRAM

– Ref. No. HD-7 Board: 9,000series –


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
HD-7 BOARD
IC802
TL1451CNS
PWM
Q816
DTA124EK
VOLTAGE CONT
Q818
DTC124EK
VOLTAGE CONT
Q815
DTC124EK
SWITCH
Q817
DTC124EK
SWITCH
Q819 2SC1623
Q820 2SA812
— VOLTAGE CONT —
Q821
2SA1385L
5V REG
D812
1SS153
D813
ERA81-004
R843 1k
C820 0.0047
R844 4.7k
R848 220
R845 4.7k
R846 680k
R847 4.7k
R856 2.2k
C821 1 50V
C822 56 16V
R849 5.6k
L801 60μH
V REF
P/C
IC802
C.T
R.T
DC.2
DC.1
Vcc
GND
C817 1 50V
C818 0.1
C819 820p
RV802 4.7k
R851 7.5k
D/D CONV FREQ
C823 0.0022
R850 4.7k
C824 0.01
C825 0.01
R853 750
C826 220 16V
L802 100μH
C827 22 10V
R854 10k
OUTPUT
RV803 1k
R852 68k
R855 3k
L806 12μH
L803 47μH
L804 12μH
L805 47μH
C828 56 6.3V
C830 56 6.3V
C829 56 6.3V
C831 56 6.3V
CN006(WHT)
1 EVF 5V
2 AUDIO 5V
3 VIDEO 5V
4 S/S 5V
5 N.C
6 REG GND
7 UNREG GND
8 VTR ON
9 N.C
10 UNREG
TO VI-7 BOARD CN006
CN005(WHT)
1 BATT GND
2 V SENS
3 TAPE TOP
4 DEW
5 DC OUT
6 UNREG 6V
7 MAIN 6V
8 SYS 5V
9 S/S 5V
10 BATT 6V
TO VI-7 BOARD CN005
Q811
NJL7141ES
TAPE TOP SENSOR
0 (0.8)
Q810
2SA1242LB
DC OUT SW
Q809
2SA812
DC OUT SW
Q808
DTC144EK
DC OUT SW
Q807
2SD596
5V REG
D810
RD5.1M-B2
PS801
ICP-N10
RV801 22k
END.V
R836 10k
R835 4.7k
R837 10k
R832 1k
R834 56
R833 56
R830 100k
R831 330k
C815 0.01
C816 22000 5.5V
GND V10 TO ZM-3 BOARD
GND BLK TO LENS
GND
MECHA DECK GND
CN806(BLK)
1 HEATER (+)
2 HEATER (−)
CN805(WHT)
1 BATT 6V RED
2 N.C
3 BATT GND BLK
TO FU-34 BOARD AND BATTERY
no mark : REC mode
( ) : TAPE TOP mode

- All resistors are in ohms, 1/10W unless otherwise noted. kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics. and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ━━ : B + bus.
- ☐ : adjustment for repair.
- The voltage value is reference value between the grounding when the color bar signal is received from a color bar generator.
- The voltage value is measured using a digital tester (10MΩ).

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

ELECTRICAL PARTS LIST

HD-7

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS
- All resistors are in ohms
- F : nonflammable

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

CAPACITORS
- MF : μF, PF : μμF

COILS
- MMH : mH, UH : μH

Ref.No	Part No.	Description			Remark
	*A-7060-674-A	HD-7 BOARD, COMPLETE *********************			
	*X-3686-591-1	HOLDER, HS TOP			
		CAPACITOR			
C815	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C816	1-125-373-11	DOUBLE LAYERS	22000MF		5.5V
C817	1-124-255-00	ELECT	1MF	20%	50V
C818	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C819	1-163-203-00	CERAMIC CHIP	820PF	5%	50V
C820	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C821	1-124-255-00	ELECT	1MF	20%	50V
C822	1-124-569-11	ELECT	56MF	20%	16V
C823	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V
C824	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C825	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C826	1-123-321-00	ELECT	220MF	20%	16V
C827	1-127-491-00	ELECT(SOLID)	22MF	20%	10V
C828	1-124-565-00	ELECT	56MF	20%	6.3V
C829	1-124-565-00	ELECT	56MF	20%	6.3V
C830	1-124-565-00	ELECT	56MF	20%	6.3V
C831	1-124-565-00	ELECT	56MF	20%	6.3V
		CONNECTOR			
CN005	1-564-610-21	CONNECTOR, BOARD TO BOARD			
CN006	1-564-610-21	CONNECTOR, BOARD TO BOARD			
CN805	*1-564-028-00	PIN, CONNECTOR 3P			
CN806	*1-564-027-00	PIN, CONNECTOR 2P			
		DIODE			
D810	8-719-105-82	DIODE RD5.1M-B2			
D812	8-719-108-01	DIODE 1SS153			
D813	8-719-981-01	DIODE ERA81-004			
		IC			
IC802 ⚠	8-759-908-95	IC TL1451CNS			
		COIL			
L801	1-421-801-11	COIL, CHOKE 60UH			
L802	1-421-884-11	COIL, CHOKE 100UH			
L803	1-408-417-00	MICRO INDUCTOR 47UH			
L804	1-421-826-11	COIL, CHOKE 12UH			
L805	1-408-417-00	MICRO INDUCTOR 47UH			
L806	1-421-826-11	COIL, CHOKE 12UH			
		IC LINK			
PS801 ⚠	1-532-605-11	LINK, IC (ICP-N10)			
		TRANSISTOR			
Q807	8-729-159-64	TRANSISTOR 2SD596			
Q808	8-729-901-01	TRANSISTOR DTC144EK			
Q809	8-729-100-76	TRANSISTOR 2SA812			
Q810 ⚠	8-729-202-86	TRANSISTOR 2SA1242LB			
Q811	8-729-700-08	NJL7141E			
Q815	8-729-901-00	TRANSISTOR DTC124EK			
Q816	8-729-901-05	TRANSISTOR DTA124EK			
Q817	8-729-901-00	TRANSISTOR DTC124EK			
Q818	8-729-901-00	TRANSISTOR DTC124EK			
Q819	8-729-100-66	TRANSISTOR 2SC1623			
Q820	8-729-100-76	TRANSISTOR 2SA812			
Q821 ⚠	8-729-105-29	TRANSISTOR 2SA1385			
		RESISTOR			
R830	1-216-097-00	METAL CHIP	100K	5%	1/10W
R831	1-216-109-00	METAL CHIP	330K	5%	1/10W
R832	1-216-049-00	METAL CHIP	1K	5%	1/10W
R833	1-216-168-00	METAL CHIP	56	5%	1/8W
R834	1-216-168-00	METAL CHIP	56	5%	1/8W
R835	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R836	1-216-073-00	METAL CHIP	10K	5%	1/10W
R837	1-216-073-00	METAL CHIP	10K	5%	1/10W
R843	1-216-049-00	METAL CHIP	1K	5%	1/10W
R844	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R845	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R846	1-216-117-00	METAL CHIP	680K	5%	1/10W
R847	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R848	1-216-033-00	METAL CHIP	220	5%	1/10W
R849	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R850	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R851	1-216-070-00	METAL CHIP	7.5K	5%	1/10W
R852	1-216-093-00	METAL CHIP	68K	5%	1/10W
R853	1-216-046-00	METAL CHIP	750	5%	1/10W
R854	1-216-073-00	METAL CHIP	10K	5%	1/10W
R855	1-216-060-00	METAL CHIP	3K	5%	1/10W
R856	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
		VARIABLE RESISTOR			
RV801	1-230-871-21	RES, ADJ, METAL GLAZE 22K			
RV802	1-230-869-11	RES, ADJ, METAL GLAZE 4.7K			
RV803	1-230-867-11	RES, ADJ, METAL GLAZE 1K			

****

AP-1

Ref.No	Part No.	Description			Remark
	A-7060-553-A	AP-1 BOARD, COMPLETE ********************			

The mounted AP-3 and AP-1 Boards will be repair parts in pairs (No replacement of either Board cam be done.)

Ref.No	Part No.	Description			Remark
		CAPACITOR			
C001	1-124-236-00	ELECT	47MF	20%	10V
C002	1-124-236-00	ELECT	47MF	20%	10V
C003	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C004	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C005	1-163-081-00	CERAMIC CHIP	0.22MF		25V
C006	1-163-081-00	CERAMIC CHIP	0.22MF		25V
C007	1-123-622-00	ELECT	22MF	20%	16V
C008	1-123-617-00	ELECT	10MF	20%	16V
C009	1-123-617-00	ELECT	10MF	20%	16V
C010	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C011	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C012	1-124-233-00	ELECT	10MF	20%	10V
C013	1-124-255-00	ELECT	1MF	20%	50V
C014	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C015	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C016	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C017	1-123-611-00	ELECT	1MF	20%	50V
C018	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C019	1-123-617-00	ELECT	10MF	20%	16V
C020	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C021	1-124-444-00	ELECT	220MF	20%	10V
C022	1-124-444-00	ELECT	220MF	20%	10V
C023	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C024	1-123-617-00	ELECT	10MF	20%	16V
C025	1-124-257-00	ELECT	2.2MF	20%	50V
C028	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
		DIODE			
D001	8-719-815-55	DIODE 1S1555			
D002	8-719-815-55	DIODE 1S1555			
D003	8-719-815-55	DIODE 1S1555			
D004	8-719-815-55	DIODE 1S1555			
D005	8-719-133-07	DIODE RD3.3EB			
		IC			
IC001	9-991-183-01	IC HY9104			
IC002	9-991-184-01	IC RF5L01			
IC003	8-759-701-01	IC NJM2904M			
IC004	8-759-700-90	IC NJM2901M			
		IC LINK			
PS001 ⚠	1-532-727-11	LINK, IC (ICP-N5)			
		TRANSISTOR			
Q001	8-729-101-07	TRANSISTOR 2SB804			
Q002	8-729-101-07	TRANSISTOR 2SB804			
Q004	8-729-103-16	TRANSISTOR 2SC1622A			
Q005	8-729-101-07	TRANSISTOR 2SB804			
Q006	8-729-101-07	TRANSISTOR 2SB804			
Q007	8-729-101-07	TRANSISTOR 2SB804			
Q008	8-729-199-92	TRANSISTOR 2SD999			
Q010	8-729-103-16	TRANSISTOR 2SC1622A			
Q011	8-729-199-92	TRANSISTOR 2SD999			
		RESISTOR			
R001	1-216-121-00	METAL CHIP	1M	5%	1/10W
R002	1-216-121-00	METAL CHIP	1M	5%	1/10W
R003	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R004	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R005	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R006	1-216-097-00	METAL CHIP	100K	5%	1/10W
R007	1-216-081-00	METAL CHIP	22K	5%	1/10W
R008	1-216-081-00	METAL CHIP	22K	5%	1/10W
R009	1-216-085-00	METAL CHIP	33K	5%	1/10W
R010	1-216-042-00	METAL CHIP	510	5%	1/10W
R011	1-216-037-00	METAL CHIP	330	5%	1/10W
R012	1-216-088-00	METAL CHIP	43K	5%	1/10W
R013	1-216-081-00	METAL CHIP	22K	5%	1/10W
R014	1-216-043-00	METAL CHIP	560	5%	1/10W
R015	1-216-097-00	METAL CHIP	100K	5%	1/10W
R016	1-216-093-00	METAL CHIP	68K	5%	1/10W
R017	1-216-070-00	METAL CHIP	7.5K	5%	1/10W
R018	1-216-047-00	METAL CHIP	820	5%	1/10W
R019	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R021	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R022	1-216-073-00	METAL CHIP	10K	5%	1/10W
R023	1-216-097-00	METAL CHIP	100K	5%	1/10W
R024	1-216-037-00	METAL CHIP	330	5%	1/10W
R025	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R026	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R027	1-216-044-00	METAL CHIP	620	5%	1/10W
R028	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R029	1-216-037-00	METAL CHIP	330	5%	1/10W
R030	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R031	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R032	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R033	1-216-042-00	METAL CHIP	510	5%	1/10W
R034	1-247-196-00	CARBON	15	5%	1/2W
R035	1-216-091-00	METAL CHIP	56K	5%	1/10W
R036	1-246-412-00	CARBON	3	5%	1/4W
R037	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R038	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R039	1-247-710-11	CARBON	560	5%	1/4W
R040	1-216-091-00	METAL CHIP	56K	5%	1/10W
R041	1-216-091-00	METAL CHIP	56K	5%	1/10W
R042	1-216-081-00	METAL CHIP	22K	5%	1/10W
R043	1-216-087-00	METAL CHIP	39K	5%	1/10W
R044	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R045	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R046	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
		VARIABLE RESISTOR			
RV001	1-228-895-00	RES, ADJ, METAL GLAZE 100K			
RV002	1-228-895-00	RES, ADJ, METAL GLAZE 100K			
RV003	1-228-890-00	RES, ADJ, METAL GLAZE 4.7K			
RV004	1-228-891-00	RES, ADJ, METAL GLAZE 10K			

****

When indicating parts by reference number, please include the board name.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

AP-3

Ref.No	Part No.	Description	Remark
	A-7060-553-A	AP-3 BOARD, COMPLETE ********************	

The mounted AP-3 and AP-1 Boards will be repair parts in pairs (No replacement of either Board cam be done.)

Ref.No	Part No.	Description			Remark
		CAPACITOR			
C029	1-124-229-00	ELECT	33MF	20%	10V
		IC			
IC005	8-759-701-01	IC NJM2904M			
		TRANSISTOR			
Q009	8-729-199-92	TRANSISTOR 2SD999			
Q012	8-729-103-16	TRANSISTOR 2SC1622A			
Q013	8-729-103-16	TRANSISTOR 2SC1622A			
		RESISTOR			
R020	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R047	1-216-097-00	METAL CHIP	100K	5%	1/10W
R048	1-216-115-00	METAL CHIP	560K	5%	1/10W
R049	1-216-073-00	METAL CHIP	10K	5%	1/10W
R050	1-216-073-00	METAL CHIP	10K	5%	1/10W
R051	1-216-073-00	METAL CHIP	10K	5%	1/10W
R052	1-216-073-00	METAL CHIP	10K	5%	1/10W

When indicating parts by reference number, please include the board name.

1. CAMERA SECTION ADJUSTMENT

1-34-3. AF Adjustment

1. +5V Adjustment (AP-1 board)

Equipment: Digital voltmeter: Q001 collector

[Adjustment Method]

Adjust to 5.00 ± 0.05V dc with RV4.

2. A+B Signal Synchronism Adjustment

Equipment: Oscilloscope

[Adjustment Method]

1) Connect 1ch of the oscilloscope to TP2.
   Connect 2ch of the oscilloscope to TP3.

Note: Make measurement by attaching a resistor of 100k~1MΩ at the tip of 2cH-probe.

each ch Range

ch \ Range	Time	Volts	AC or DC
1ch	10 μsec	50 (mV)	AC
2ch		2V	DC

2) Adjust RV2, and set the rising time of read-signal of A+B to the peak of the bottom of A+B signal.

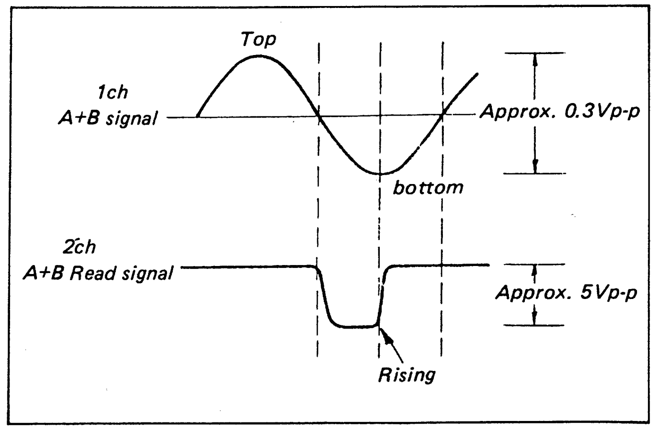


Fig. 1-55

3. A+B Signal Synchronims Adjustment

Equipment: Oscilloscope

[Adjustment Method]

1) Connect 1ch of the oscilloscope to TP1.

Note: Make measurement by attaching a resistor of 100k~1MΩ at the tip of 2cH-probe.

each ch Range

ch \ Range	Time	Volts	AC or DC
1ch	10μsec	50 (mV)	AC
2ch		2V	DC

2) Adjust RV1, and set the peak (top or bottom) of A-B signal to the rising time of A-B read signal.

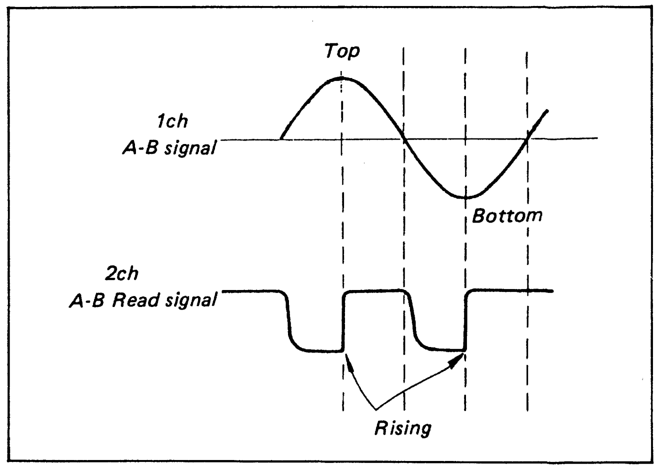


Fig. 1-56

3) After adjustment, close the light-receiving unit and confirm that the focus ring is at its "∞" position.

4. F Speed Adjustment

Equipment: stopwatch

[Adjustment Method]

1) For preventing the light from getting into the light-receiving unit, cover it with a coin, etc. (Fig.1-57)
2) Turn the focus ring up to the nearest distance, and turn RV3 to adjust the time for the focus ring to return to "∞" position at 2.7 sec. when releasing the hand.

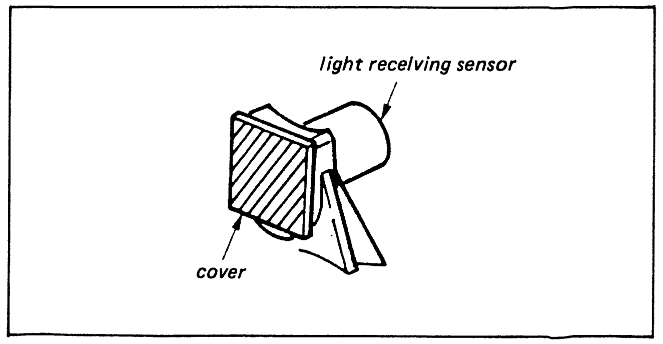


Fig. 1-57

3-1. Power System Adjustment (HD-7 board)

3-1-1. DC/DC Converter Frequency Adjustment

Mode: E-E

Frequency counter: Pin ⑩ of IC801.
(Connect the frequency counter
through the oscilloscope.)

[Adjustment Method]

Adjust to 95.0 ± 0.5kHz with RV802.

3-1-2. DC/DC Converter Output Voltmeter Adjustment (HD-7 board)

Mode: E-E

Digital voltmeter: Pin ③ of CN006 (GND: Pin ⑥ of CN006)

[Adjustment Method]

Adjust to 5.07 ± 0.02V with RV803.

CCD-V8AF-E

SONY

SERVICE MANUAL

AEP Model
UK Model
West Germany Model

SUPPLEMENT-2

Subject: Circuit modifications and partial changes of exploded views.

File this supplement-2 with the Service Manual.

Owing to partial changes in the circuits of Camera, Video, Servo mechanism control, Mode control and Audio sections, the circuit diagrams, printed circuit diagram and electrical parts list relevant to the above have partially been changed, also exploded views have partially been changed.
The major contents of circuit which have been changed are as follows:

- Camera section
  Delete Q718 and Q719 on ME-2 board
- Video section
  The end digits of part No. of EX-3 board has been changed from −11 to −12.
- Servo mechanism control section
  Delete Q623, Q624, and their peripheral resistors and capacitors on MC-8 board.
- Mode control section
  Delete D605 and its peripheral resistors and capacitors on DS-8 board
- Audio section
  Change IC401 on AR-2 board from CX20037-2 to CX20037A and also the peripheral circuits

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Mode Control Section, DS-18 board 10
Audio Section, AR-2 board 11

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SECTION 4
SCHEMATIC DIAGRAM AND PRINTED WIRING BOARDS

ME-2 BOARD CAMERA (1)

Changing parts List

Ref. No.	FORMER	NEW	Page
Q718	8-729-900-99 TRANSISTOR DTA144WK	DELETE	162
Q719	8-729-901-03 TRANSISTOR DTC144WK	DELETE	162
R756	1-216-035-00 METAL CHIP 270 5% 1/10W	DELETE	163

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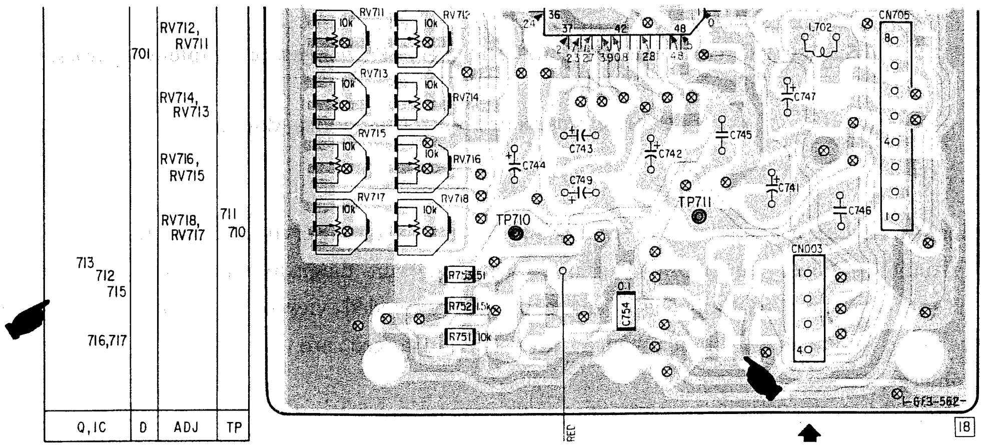
(COMPONENT SIDE)



701
RV712, RV711
RV714, RV713
RV716, RV715
RV718, RV717
711
710
713
712
715
716,717
Q,IC
D
ADJ
TP
RV711
RV712
RV713
RV714
RV715
RV716
RV717
RV718
10k
CN705
L702
C747
C745
C743
C742
C744
C749
C741
C746
TP710
TP711
CN003
R753 51
R752 1.5k
R751 10k
0.1
C754
1-673-562-
REC
18

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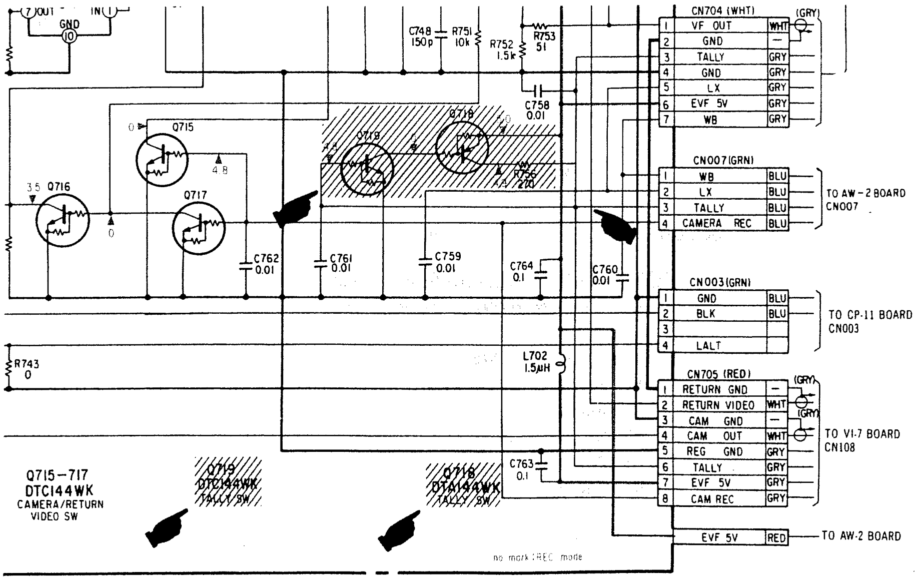

OUT
IN
GND
10
C748 150p
R751 10k
R752 1.5k
R753 51
C758 0.01
Q715
Q716
Q717
Q718
Q719
R756 270
3.5
0
4.8
C762 0.01
C761 0.01
C759 0.01
C764 0.1
C760 0.01
R743 0
L702 1.5µH
C763 0.1
CN704 (WHT)
1 VF OUT WHT
2 GND
3 TALLY GRY
4 GND GRY
5 LX GRY
6 EVF 5V GRY
7 WB GRY
(GRY)
CN007(GRN)
1 WB BLU
2 LX BLU
3 TALLY BLU
4 CAMERA REC BLU
TO AW-2 BOARD CN007
CN003(GRN)
1 GND BLU
2 BLK BLU
3
4 LALT
TO CP-11 BOARD CN003
CN705 (RED)
1 RETURN GND
2 RETURN VIDEO WHT
3 CAM GND
4 CAM OUT WHT
5 REG GND GRY
6 TALLY GRY
7 EVF 5V GRY
8 CAM REC GRY
TO VI-7 BOARD CN108
EVF 5V RED
TO AW-2 BOARD
Q715-717 DTC144WK CAMERA/RETURN VIDEO SW
Q719 DTC144WK TALLY SW
Q718 DTA144WK TALLY SW
no mark : REC mode

▨ : DELETE

☛ : CHANGED PORTION

2

EX-3 BOARD VIDEO

The end digits of part No. of EX-3 board has been changed from −11 to −12.

Changing parts List

Ref. No.	FORMER	NEW	Page
C374	1-163-112-00 CERAMIC CHIP 62PF 5% 50V	1-163-115-00 CERAMIC CHIP 2PF 5% 50V	168
C379	1-163-113-00 CERAMIC CHIP 68PF 5% 50V	1-163-117-00 CERAMIC CHIP 100PF 5% 50V	168
C382	1-163-093-00 CERAMIC CHIP 10PF 5% 50V	1-163-107-00 CERAMIC CHIP 39PF 5% 50V	168
C388	NONE	1-163-107-00 CERAMIC CHIP 39PF 5% 50V	168
C389	NONE	1-163-101-00 CERAMIC CHIP 22PF 5% 50V	168
R376	1-216-065-00 METAL CHIP 4.7K 5% 1/10W	1-216-047-00 METAL CHIP 820 5% 1/10W	169
R382	1-216-047-00 METAL CHIP 820 5% 1/10W	1-216-049-00 METAL CHIP 1K 5% 1/10W	169

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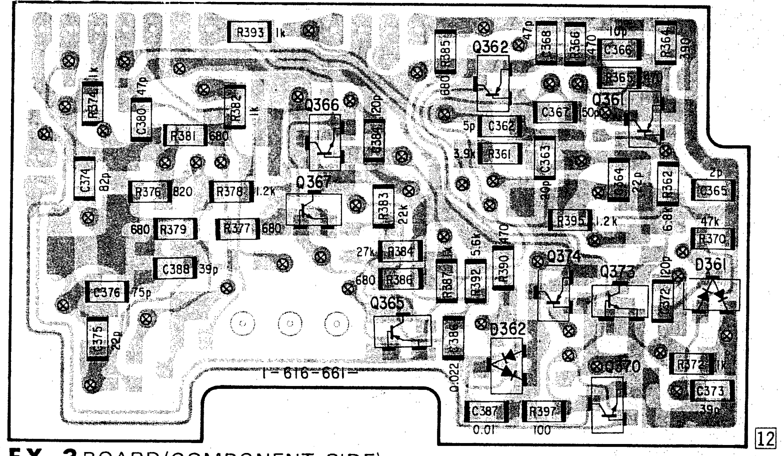
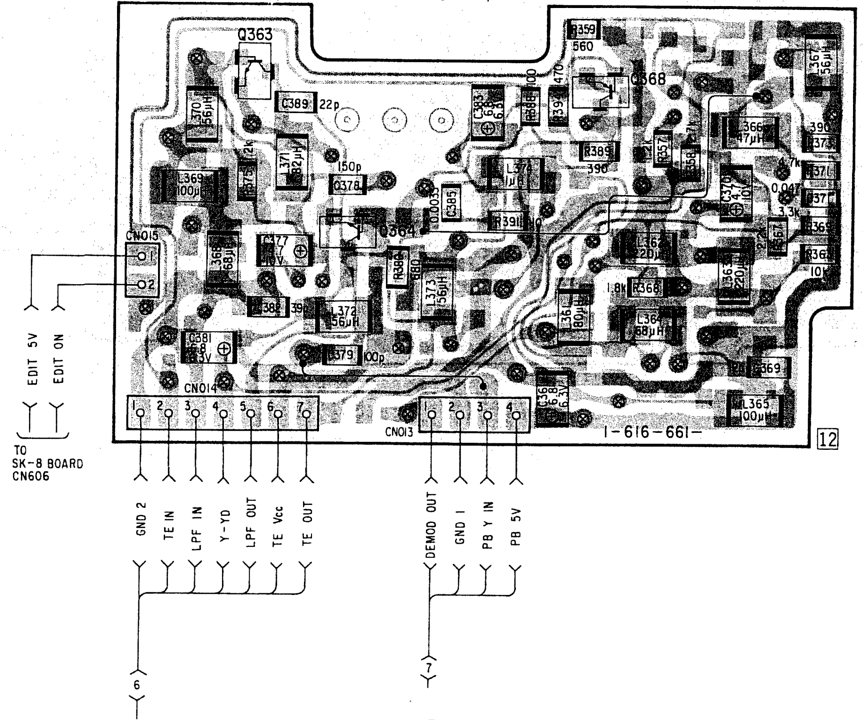
EX-3 BOARD(SOLDER SIDE)



R393
Q362
Q366
C380
R381
C374
R376 820
R378
C379
C388 39p
C376
Q361
Q374
Q373
Q370
C387 0.01
R397 100
1-616-661-
12

EX-3 BOARD(COMPONENT SIDE)



Q363
C389 22p
R359 560
Q368
CN015
CN014
CN013
1-616-661-
12
EDIT 5V
EDIT ON
TO SK-8 BOARD CN606
GND 2
TE IN
LPF IN
Y-YD
LPF OUT
TE Vcc
TE OUT
DEMOD OUT
GND 1
PB Y IN
PB 5V
6
7

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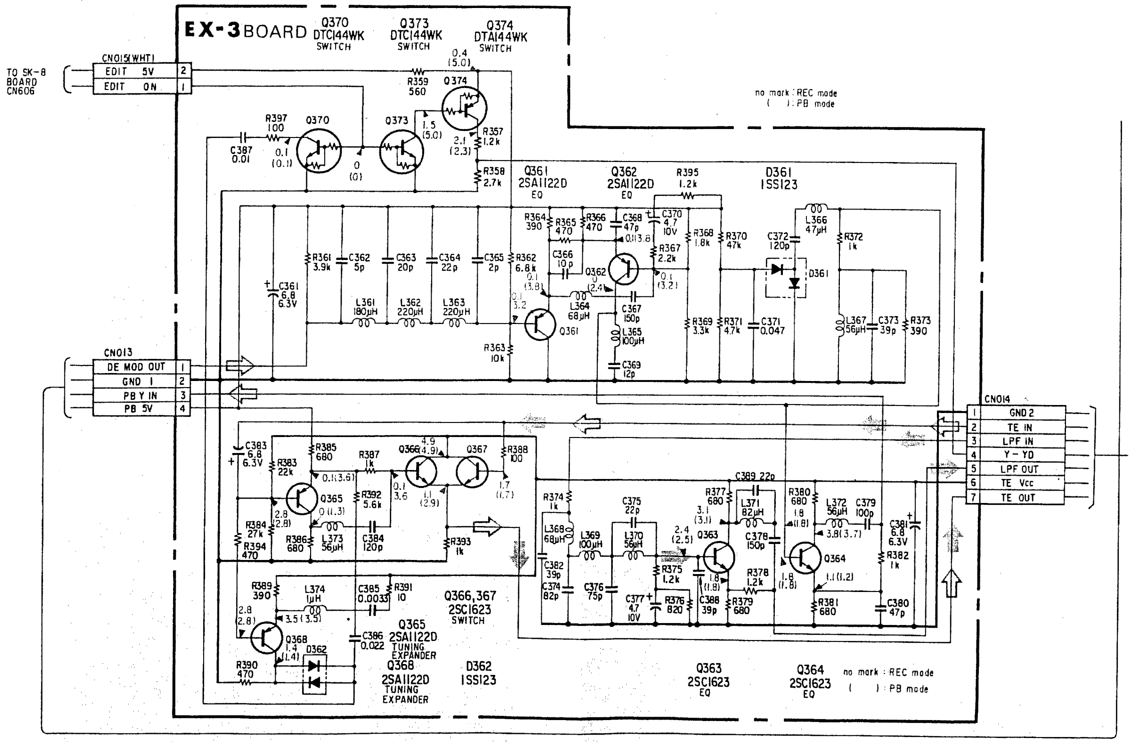


EX-3 BOARD
Q370 DTC144WK SWITCH
Q373 DTC144WK SWITCH
Q374 DTA144WK SWITCH
TO SK-8 BOARD CN606
CN015(WHT)
EDIT 5V
EDIT ON
no mark : REC mode
( ) : PB mode
Q361 2SA1122D EQ
Q362 2SA1122D EQ
D361 1SS123
CN013
DE MOD OUT
GND 1
PB Y IN
PB 5V
CN014
GND 2
TE IN
LPF IN
Y-YD
LPF OUT
TE Vcc
TE OUT
Q366,367 2SC1623 SWITCH
Q365 2SA1122D TUNING EXPANDER
Q368 2SA1122D TUNING EXPANDER
D362 1SS123
Q363 2SC1623 EQ
Q364 2SC1623 EQ

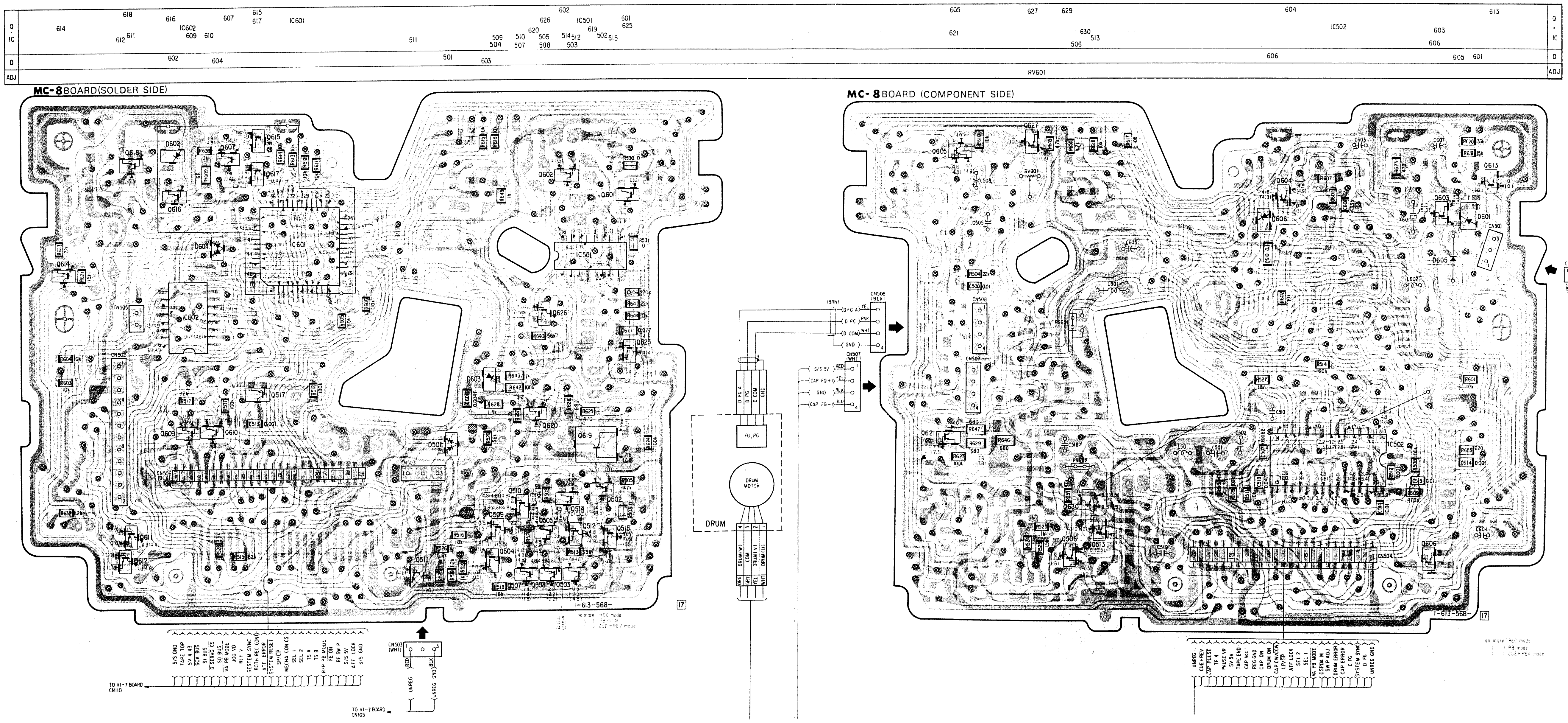
- **Signal path**

: REC Y Signal
⇨ : PB Y Signal

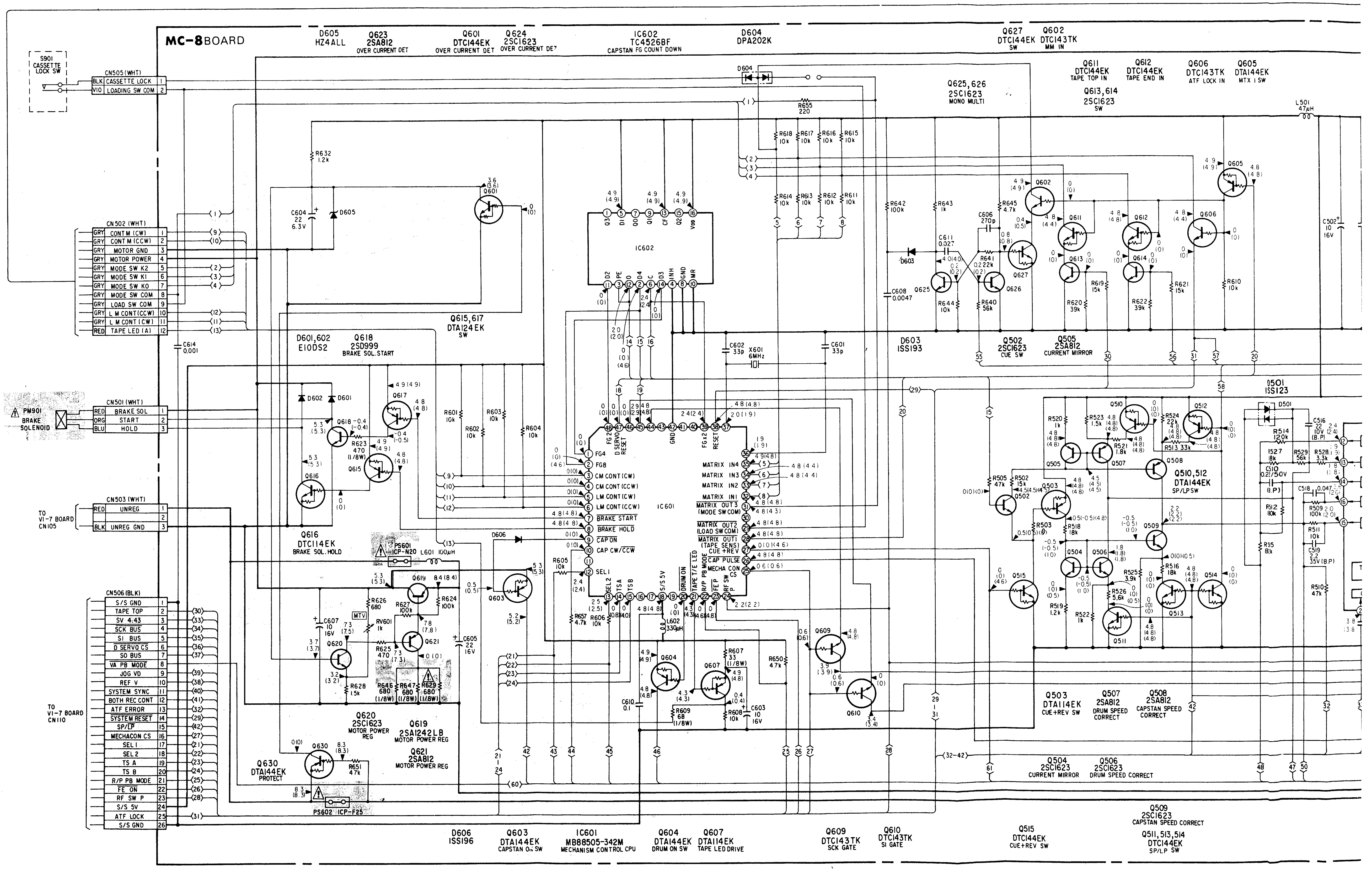
MC-8 BOARD SERVO/MECHANISM CONTROL

Page 116

- As Q623, Q624, and their peripheral circuits (resistors and capacitors) have been deleted or altered, see the circuit diagram and printed diagram below.
- The deletion of Q623, Q624, C609, R630, R631, R635 through R639, and R652 through R654, which are the excess current prevention circuits of the control motor and loading motor, and alteration from DTC143TK to DTC144EK of Q601 are beyond -17 of end digits of the board.



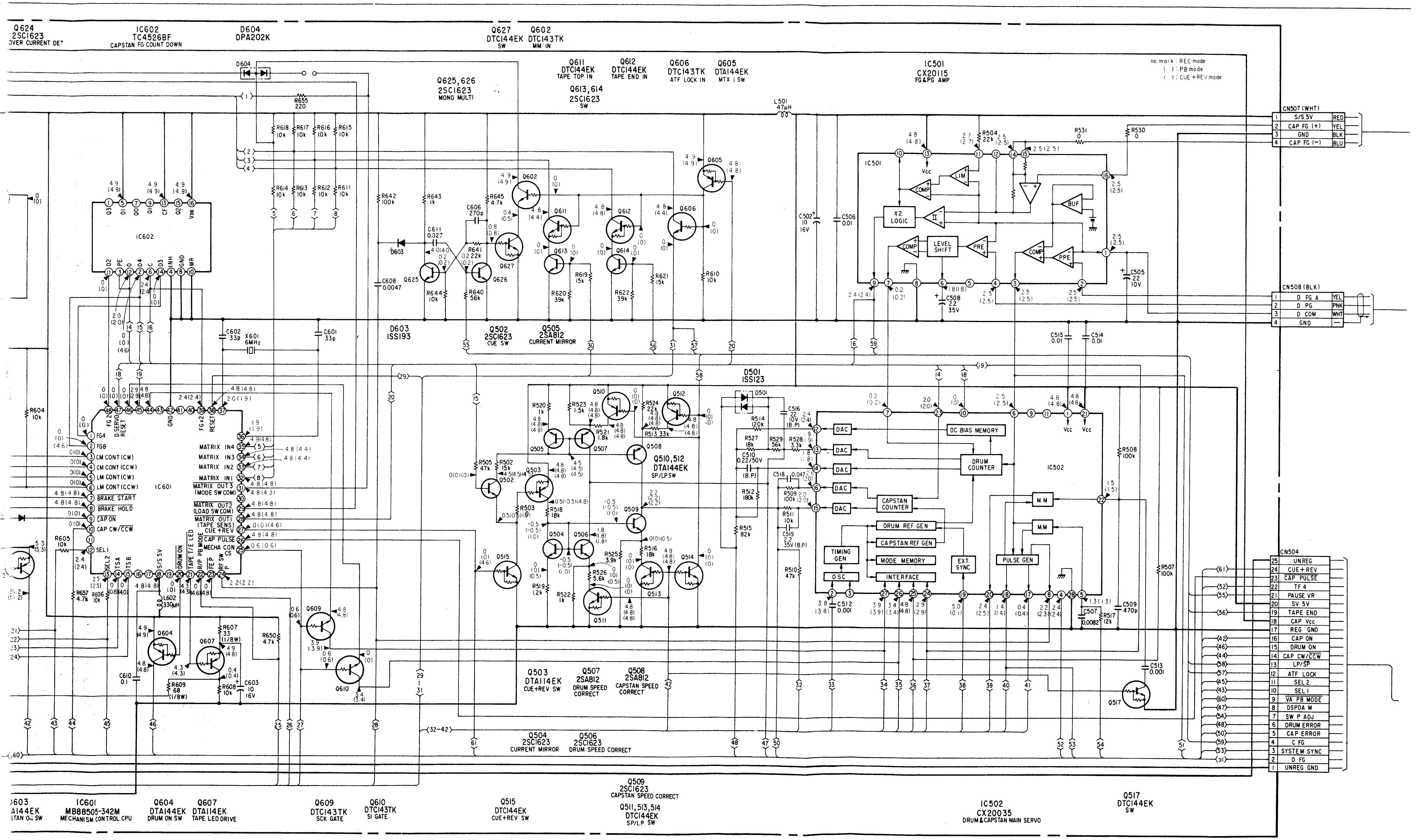
Q
IC
D
ADJ
614
618
612
611
616
IC602
609
610
607
615
617
IC601
602
604
511
501
603
509
504
510
507
505
508
626
620
514
512
503
IC501
619
502
515
601
625
605
621
627
629
630
506
513
RV601
604
IC502
606
603
605
601
613
MC-8 BOARD (SOLDER SIDE)
MC-8 BOARD (COMPONENT SIDE)
CN506 (BLK)
CN507 (WHT)
CN503 (WHT)
CN501 (WHT)
DRUM
DRUM MOTOR
FG, PG
PM901 BRAKE SOLENOID
TO VI-7 BOARD CN110
TO VI-7 BOARD CN105
1-613-568-
17


MC-8BOARD
D605 HZ4ALL
Q623 2SA812 OVER CURRENT DET
Q601 DTC144EK OVER CURRENT DET
Q624 2SC1623 OVER CURRENT DET
IC602 TC4526BF CAPSTAN FG COUNT DOWN
D604 DPA202K
Q627 DTC144EK SW
Q602 DTC143TK MM IN
Q611 DTC144EK TAPE TOP IN
Q612 DTC144EK TAPE END IN
Q606 DTC143TK ATF LOCK IN
Q605 DTA144EK MTX 1 SW
Q625,626 2SC1623 MONO MULTI
Q613,614 2SC1623 SW
L501 47μH
S901 CASSETTE LOCK SW
CN505 (WHT)
CASSETTE LOCK
LOADING SW COM
CN502 (WHT)
CONT M (CW)
CONT M (CCW)
MOTOR GND
MOTOR POWER
MODE SW K2
MODE SW K1
MODE SW K0
MODE SW COM
LOAD SW COM
L M CONT (CCW)
L M CONT (CW)
TAPE LED (A)
IC602
D601,602 E10DS2
Q618 2SD999 BRAKE SOL.START
Q615,617 DTA124EK SW
D603 1SS193
Q502 2SC1623 CUE SW
Q505 2SA812 CURRENT MIRROR
D501 1SS123
PM901 BRAKE SOLENOID
CN501 (WHT)
BRAKE SOL
START
HOLD
Q616 DTC114EK BRAKE SOL.HOLD
IC601
FG4
FG8
CM CONT (CW)
CM CONT (CCW)
LM CONT (CW)
LM CONT (CCW)
BRAKE START
BRAKE HOLD
CAP ON
CAP CW/CCW
SEL 1
MATRIX IN4
MATRIX IN3
MATRIX IN2
MATRIX IN1
MATRIX OUT3 (MODE SW COM)
MATRIX OUT2 (LOAD SW COM)
MATRIX OUT1 (TAPE SENS)
CUE+REV
CAP PULSE
MECHA CON CS
Q510,512 DTA144EK SP/LP SW
TO VI-7 BOARD CN105
CN503 (WHT)
UNREG
UNREG GND
PS601 ICP-N20
L601 100μH
TO VI-7 BOARD CN110
CN506 (BLK)
S/S GND
TAPE TOP
SV 4.43
SCK BUS
SI BUS
D SERVO CS
SO BUS
VA PB MODE
JOG VD
REF V
SYSTEM SYNC
BOTH REC CONT
ATF ERROR
SYSTEM RESET
SP/LP
MECHACON CS
SEL 1
SEL 2
TS A
TS B
R/P PB MODE
FE ON
RF SW P
S/S 5V
ATF LOCK
S/S GND
Q620 2SC1623 MOTOR POWER REG
Q619 2SA1242LB MOTOR POWER REG
Q621 2SA812 MOTOR POWER REG
Q630 DTA144EK PROTECT
PS602 ICP-F25
X601 6MHz
L602 330μH
Q503 DTA114EK CUE+REV SW
Q507 2SA812 DRUM SPEED CORRECT
Q508 2SA812 CAPSTAN SPEED CORRECT
Q504 2SC1623 CURRENT MIRROR
Q506 2SC1623 DRUM SPEED CORRECT
Q509 2SC1623 CAPSTAN SPEED CORRECT
D606 1SS196
Q603 DTA144EK CAPSTAN ON SW
IC601 MB88505-342M MECHANISM CONTROL CPU
Q604 DTA144EK DRUM ON SW
Q607 DTA114EK TAPE LED DRIVE
Q609 DTC143TK SCK GATE
Q610 DTC143TK SI GATE
Q515 DTC144EK CUE+REV SW
Q511,513,514 DTC144EK SP/LP SW

MC-8BOARD

REF		LP REC	LP CUE+REV	SP REC	SP CUE+REV
Q502	B	0	0.6	0	0.6
	C	4.4	0	4.4	0
	E	4.8	0	4.8	0
Q503	B	4.8	—	4.8	—
	C	-0.3	—	-0.3	—
	E	4.8	—	4.8	—
Q504	B	-0.3	—	-0.3	—
	C	-0.3	—	-0.3	—
	E	0	—	0	—
Q505	B	4.4	4.0	4.4	4.0
	C	4.4	4.6	4.4	4.6
	E	4.8	4.0	4.8	4.0
Q506	B	-0.3	—	-0.3	—
	C	1.9	—	1.9	—
	E	0	—	0	—
Q507	B	4.4	—	4.4	—
	C	1.9	—	1.9	—
	E	4.8	—	4.8	—
Q508	B	4.4	—	4.4	—
	C	2.4	—	2.1	—
	E	4.8	—	4.8	—
Q509	B	-0.3	—	-0.3	—
	C	2.4	—	2.1	—
	E	0	—	0	—
Q510	B	4.8	—	0	—
	C	4.8	—	4.8	—
	E	4.8	—	4.8	—
Q511	B	0	—	4.8	—
	C	0	—	0	—
	E	GND	—	GND	—
Q512	B	4.8	—	0	—
	C	4.8	—	4.8	—
	E	4.8	—	4.8	—
Q513	B	0	—	4.8	—
	C	0	—	0	—
	E	GND	—	GND	—
Q514	B	0	—	4.8	—
	C	4.8	—	0	—
	E	GND	—	GND	—
Q515	B	0	4.5	0	4.5
	C	4.8	0	4.8	0
	E	GND	GND	GND	GND
Q517	B	0	—	4.8	—
	C	0.7	—	0	—
	E	GND	—	GND	—

2



Q624 2SC1623 OVER CURRENT DET
IC602 TC4526BF CAPSTAN FG COUNT DOWN
D604 DPA202K
Q627 DTC144EK SW
Q602 DTC143TK MM IN
Q611 DTC144EK TAPE TOP IN
Q612 DTC144EK TAPE END IN
Q606 DTC143TK ATF LOCK IN
Q605 DTA144EK MTX 1 SW
Q625,626 2SC1623 MONO MULTI
Q613,614 2SC1623 SW
IC501 CX20115 FG&PG AMP
no mark : REC mode
( ) : PB mode
( ) : CUE+REV mode
CN507 (WHT)
1 S/S 5V RED
2 CAP FG (+) YEL
3 GND BLK
4 CAP FG (−) BLU
CN508 (BLK)
1 D FG A YEL
2 D PG PNK
3 D COM WHT
4 GND
L501 47µH
R655 220
R618 10k
R617 10k
R616 10k
R615 10k
R614 10k
R613 10k
R612 10k
R611 10k
R642 100k
R643 1k
C611 0.027
C606 270p
R645 4.7k
R641 2.2k
R644 10k
R640 56k
R620 39k
R619 15k
R622 39k
R621 15k
R610 10k
C608 0.0047
C602 33p
X601 6MHz
C601 33p
D603 1SS193
Q502 2SC1623 CUE SW
Q505 2SA812 CURRENT MIRROR
C502 10 16V
C506 0.01
R504 22k
R531 0
R530 0
X2 LOGIC
COMP
LIM
BUF
LEVEL SHIFT
PRE
PPE
C505 22 10V
C508 2.2 35V
C515 0.01
C514 0.01
D501 1SS123
R520 1k
R523 1.5k
R521 1.8k
R524 22k
R513 33k
Q510 Q512 Q505 Q507 Q508
Q510,512 DTA144EK SP/LPSW
R505 47k
R502 15k
Q503 Q502
R503 6
R518 18k
Q509
Q504 Q506
R525 3.9k
R526 5.6k
R516 18k
R519 1.2k
R522 1k
Q511 Q513 Q514 Q515
C516 22 10V (B.P)
R514 120k
R527 18k
R529 56k
R528 3.3k
C510 0.22/50V (B.P)
C518 0.047
R512 180k
R509 100k
R511 10k
C519 2.2 35V(B.P)
R515 82k
R510 47k
DAC
DC BIAS MEMORY
DRUM COUNTER
CAPSTAN COUNTER
DRUM REF GEN
CAPSTAN REF GEN
MODE MEMORY
INTERFACE
TIMING GEN
OSC
EXT SYNC
PULSE GEN
M.M
IC502
R508 100k
R507 100k
C512 0.001
C507 0.0082
R517 12k
C509 470p
C513 0.001
Q517
CN504
25 UNREG
24 CUE+REV
23 CAP PULSE
22 TF 4
21 PAUSE VR
20 SV 5V
19 TAPE END
18 CAP Vcc
17 REG GND
16 CAP ON
15 DRUM ON
14 CAP CW/CCW
13 LP/SP
12 ATF LOCK
11 SEL 2
10 SEL 1
9 VA PB MODE
8 DSPDA M
7 SW P ADJ
6 DRUM ERROR
5 CAP ERROR
4 C FG
3 SYSTEM SYNC
2 D FG
1 UNREG GND
IC601
R604 10k
FG4 FG8
CM CONT (CW)
CM CONT (CCW)
LM CONT (CW)
LM CONT (CCW)
BRAKE START
BRAKE HOLD
CAP ON
CAP CW/CCW
SEL 1
MATRIX IN4
MATRIX IN3
MATRIX IN2
MATRIX IN1
MATRIX OUT3 (MODE SW COM)
MATRIX OUT2 (LOAD SW COM)
MATRIX OUT1 (TAPE SENS)
CUE+REV
CAP PULSE
MECHA CON CS
D SERVO RESET
FG×2 RESET
SEL2 TSA TSB S/S 5V DRUM ON TAPE T/E LED R/P PB MODE FEP RF SW P
R605 10k
R657 4.7k
R606 10k
L602 330µH
Q604 Q607
R607 33 (1/8W)
R609 68 (1/8W)
R608 10k
C603 10 16V
C610 0.1
R650 4.7k
Q609 Q610
Q503 DTA114EK CUE+REV SW
Q507 2SA812 DRUM SPEED CORRECT
Q508 2SA812 CAPSTAN SPEED CORRECT
Q504 2SC1623 CURRENT MIRROR
Q506 2SC1623 DRUM SPEED CORRECT
Q509 2SC1623 CAPSTAN SPEED CORRECT
Q511,513,514 DTC144EK SP/LP SW
Q603 A144EK STAN ON SW
IC601 MB88505-342M MECHANISM CONTROL CPU
Q604 DTA144EK DRUM ON SW
Q607 DTA114EK TAPE LED DRIVE
Q609 DTC143TK SCK GATE
Q610 DTC143TK S1 GATE
Q515 DTC144EK CUE+REV SW
IC502 CX20035 DRUM&CAPSTAN MAIN SERVO
Q517 DTC144EK SW

DS-8 BOARD MODE CONTROL

Changing parts List

Ref. No.	FORMER	NEW	Page
C603	1-124-258-00 ELECT 3.3MF 20% 25V	DELETE	176
D605	8-719-106-43 DIODE RD9.1M-B1	DELETE	177
R611	1-216-073-00 METAL CHIP 10K 5% 1/10W	DELETE	177
R613	1-216-065-00 METAL CHIP 4.7K 5% 1/10W	DELETE	177

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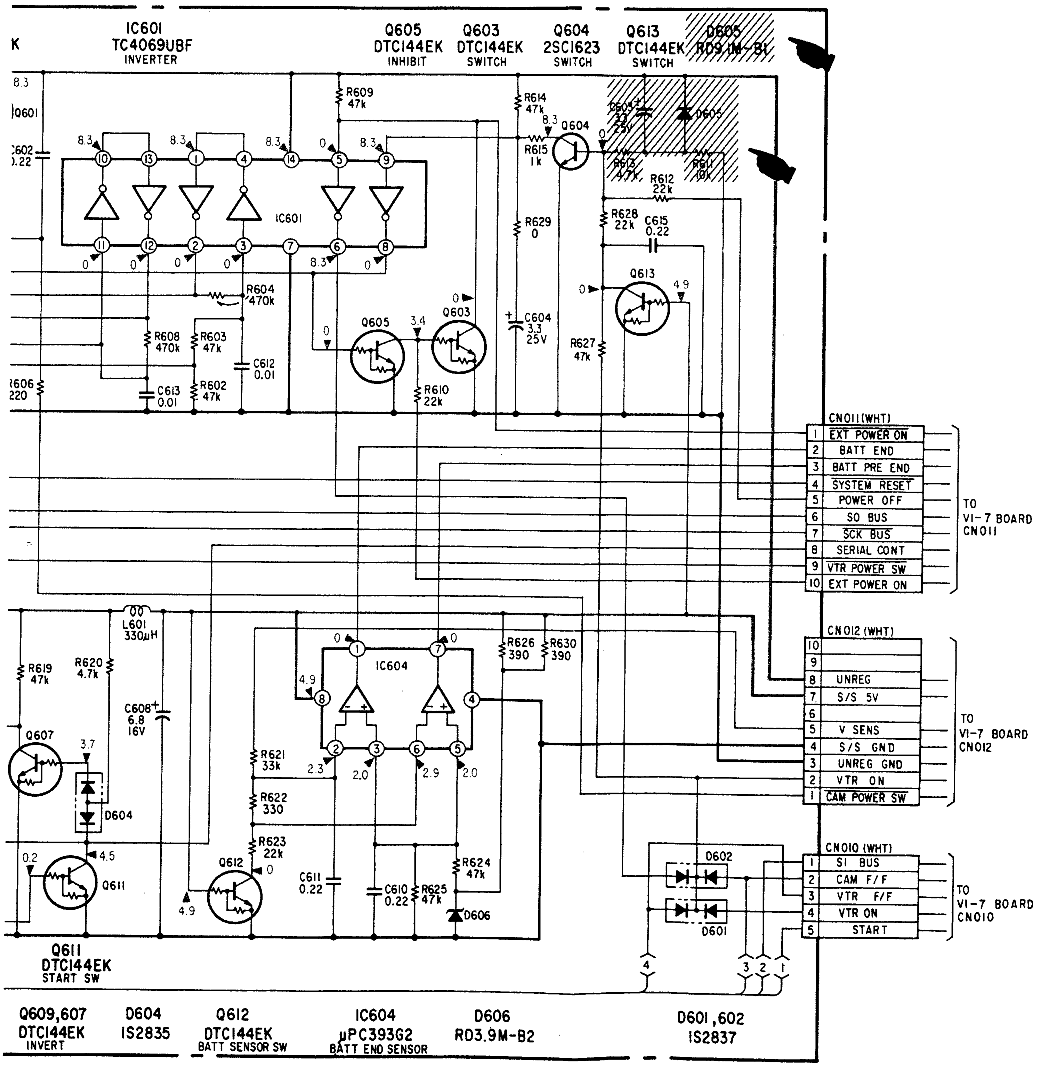
IC601
TC4069UBF
INVERTER
Q605
DTC144EK
INHIBIT
Q603
DTC144EK
SWITCH
Q604
2SC1623
SWITCH
Q613
DTC144EK
SWITCH
D605
RD9.1M-B1
R609 47k
R614 47k
R615 1k
C603 3.3 25V
R613 4.7k
R611 10k
R612 22k
R628 22k
C615 0.22
R629 0
C604 3.3 25V
R627 47k
R604 470k
R608 470k
R603 47k
C612 0.01
C613 0.01
R602 47k
R610 22k
R606 220
C602 0.22
CN011 (WHT)
1 EXT POWER ON
2 BATT END
3 BATT PRE END
4 SYSTEM RESET
5 POWER OFF
6 SO BUS
7 SCK BUS
8 SERIAL CONT
9 VTR POWER SW
10 EXT POWER ON
TO VI-7 BOARD CN011
CN012 (WHT)
8 UNREG
7 S/S 5V
5 V SENS
4 S/S GND
3 UNREG GND
2 VTR ON
1 CAM POWER SW
TO VI-7 BOARD CN012
CN010 (WHT)
1 SI BUS
2 CAM F/F
3 VTR F/F
4 VTR ON
5 START
TO VI-7 BOARD CN010
L601 330μH
R619 47k
R620 4.7k
C608 6.8 16V
Q607
D604
Q611
R621 33k
R622 330
R623 22k
Q612
IC604
R626 390
R630 390
C611 0.22
C610 0.22
R625 47k
R624 47k
D606
D602
D601
Q611
DTC144EK
START SW
Q609,607
DTC144EK
INVERT
D604
IS2835
Q612
DTC144EK
BATT SENSOR SW
IC604
μPC393G2
BATT END SENSOR
D606
RD3.9M-B2
D601,602
IS2837

▨ : DELETE

☛ : CHANGED PORTION

AR-2 BOARD AUDIO

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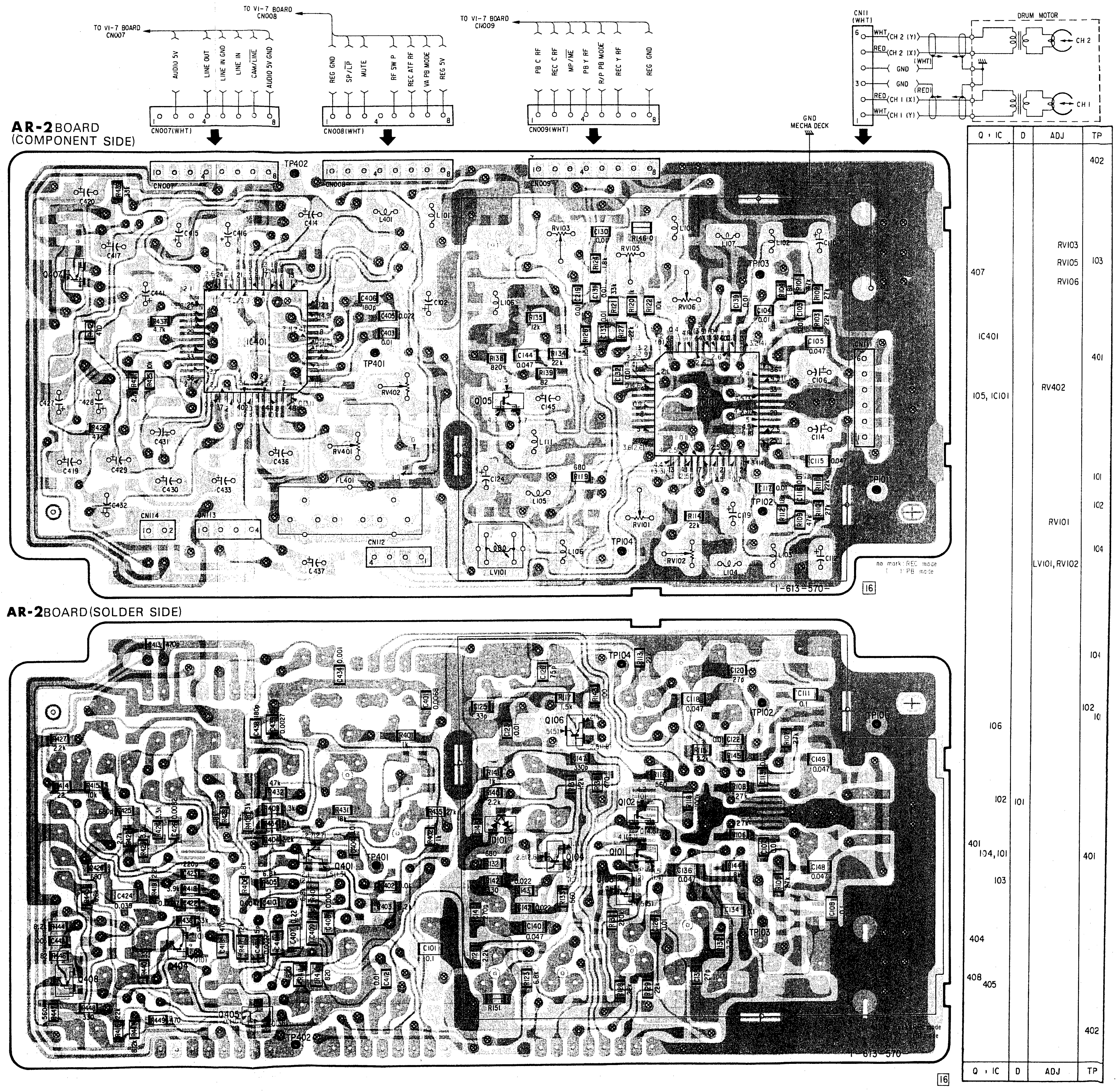
In accordance with the change IC401 (AFM PROCESS IC) from CX20037-2 to CX20037A, the peripheral circuits have also been changed. Regarding the board which uses CX20037A, refer to the following circuit diagram and printed circuit diagram.



AR-2 BOARD (COMPONENT SIDE)

AR-2 BOARD (SOLDER SIDE)

TO VI-7 BOARD CN007
AUDIO 5V
LINE OUT
LINE IN GND
LINE IN
CAM/LINE
AUDIO 5V GND
CN007(WHT)
TO VI-7 BOARD CN008
REG GND
SP/LP
MUTE
RF SW P
REC ATF RF
VA PB MODE
REG 5V
CN008(WHT)
TO VI-7 BOARD CN009
PB C RF
REC C RF
MP/ME
PB Y RF
R/P PB MODE
REC Y RF
REG GND
CN009(WHT)
GND MECHA DECK
CN11 (WHT)
DRUM MOTOR
CH 2
CH 1
WHT
RED
GND
TP402
TP401
TP101
TP102
TP103
TP104
IC401
IC101
Q105
Q106
Q101
Q102
Q401
D101
RV101
RV102
RV103
RV105
RV106
RV401
RV402
LV101
FL401
CN112
CN113
CN114
no mark: REC mode
( ): PB mode
1-613-570-
16
Q · IC
D
ADJ
TP

2

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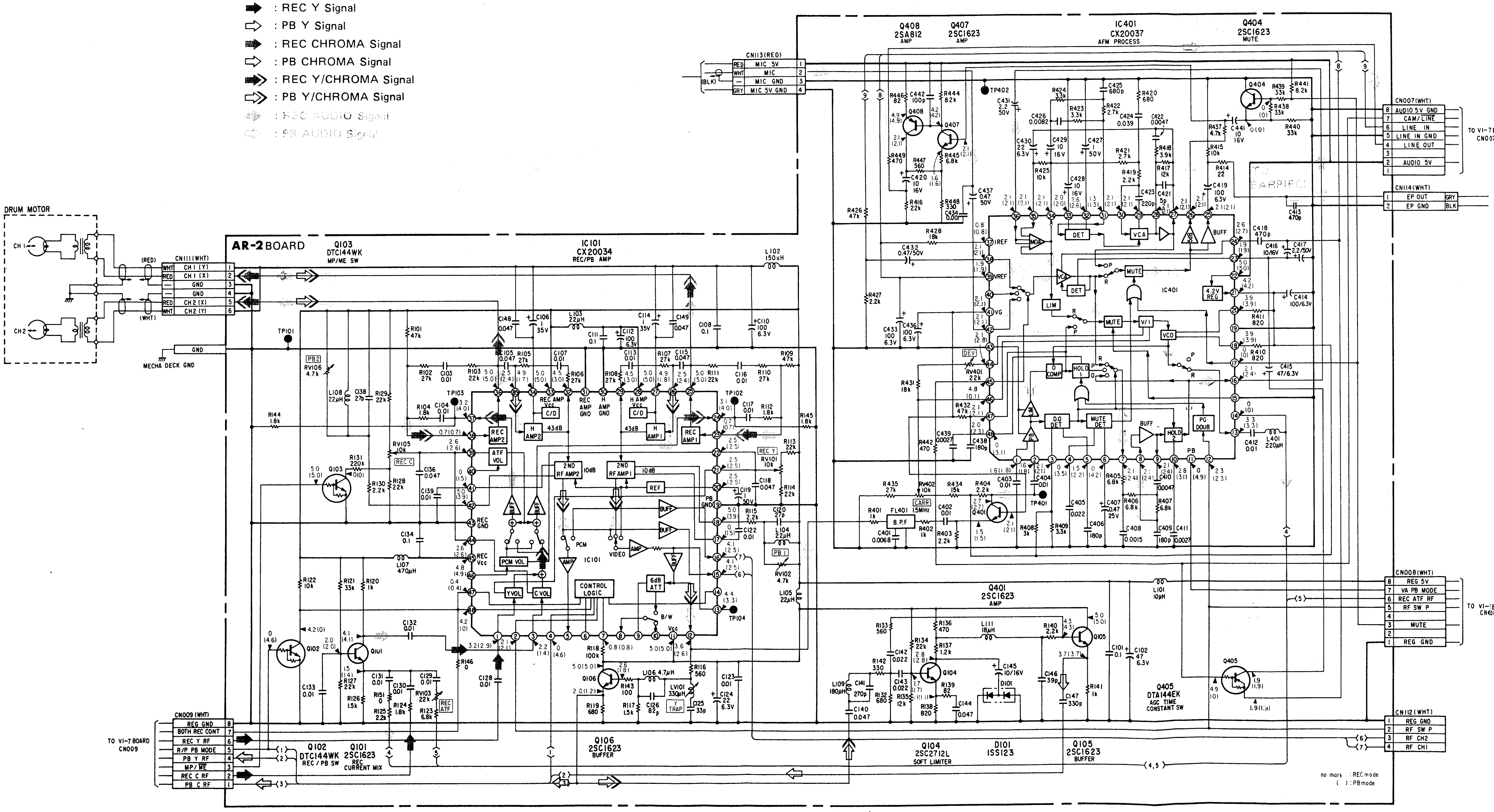
- **Signal path**
  - ➡ : REC Y Signal
  - ⇨ : PB Y Signal
  - ➡ : REC CHROMA Signal
  - ⇨ : PB CHROMA Signal
  - ➡» : REC Y/CHROMA Signal
  - ⇨» : PB Y/CHROMA Signal
  - ➡ : REC AUDIO Signal
  - ⇨ : PB AUDIO Signal



DRUM MOTOR
CH1
CH2
(RED)
(WHT)
CN111(WHT)
CH1 (Y)
CH1 (X)
GND
CH2 (X)
CH2 (Y)
MECHA DECK GND
AR-2 BOARD
Q103
DTC144WK
MP/ME SW
IC101
CX20034
REC/PB AMP
L102
150uH
CN113(RED)
MIC 5V
MIC
MIC GND
MIC 5V GND
(BLK)
Q408
2SA812
AMP
Q407
2SC1623
AMP
IC401
CX20037
AFM PROCESS
Q404
2SC1623
MUTE
CN007(WHT)
AUDIO 5V GND
CAM/LINE
LINE IN
LINE IN GND
LINE OUT
AUDIO 5V
TO VI-7 BOARD CN007
CN114(WHT)
EP OUT
EP GND
GRY
BLK
TP402
TP101
TP102
TP103
TP104
TP401
REC AMP2
REC AMP1
H AMP2
H AMP1
ATF VOL
2ND RF AMP2
2ND RF AMP1
REF
BUFF
PCM VOL
Y VOL
C VOL
CONTROL LOGIC
6dB ATT
AMP
PCM
VIDEO
B/W
REC GND
REC Vcc
PB GND
DET
VCA
LIM
MUTE
V/I
VCO
COMP
HOLD
DO DET
MUTE DET
PG DOUB
4.2V REG
B.P.F
FL401
CARR
15MHz
Q401
2SC1623
AMP
CN008(WHT)
REG 5V
VA PB MODE
REC ATF RF
RF SW P
MUTE
REG GND
TO VI-7 BOARD CN008
CN112(WHT)
REG GND
RF SW P
RF CH2
RF CH1
CN009(WHT)
REG GND
BOTH REC CONT
REC Y RF
R/P PB MODE
PB Y RF
MP/ME
REC C RF
PB C RF
TO VI-7 BOARD CN009
Q102
DTC144WK
REC/PB SW
Q101
2SC1623
REC CURRENT MIX
Q106
2SC1623
BUFFER
Q104
2SC2712L
SOFT LIMITER
D101
1SS123
Q105
2SC1623
BUFFER
Q405
DTA144EK
AGC TIME CONSTANT SW
Y TRAP
REC ATF
no mark : REC mode
( ) : PB mode

SECTION 5
EXPLODED VIEWS

This is change in repair part and new repair part.

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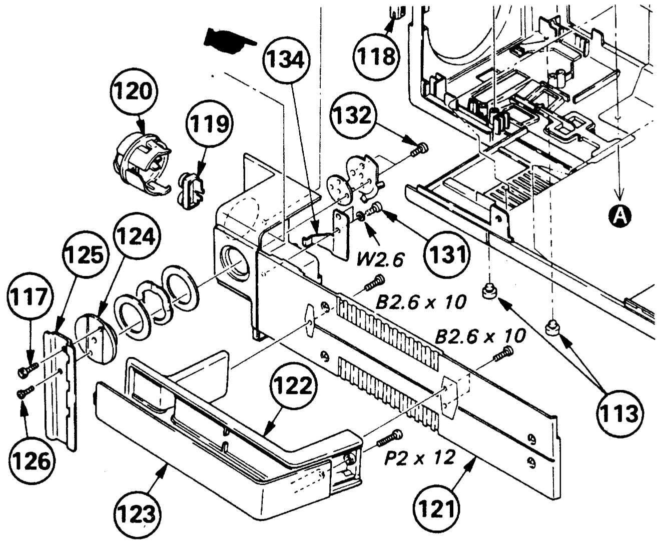
5-3. CONTROL PANEL, CABINET (UPPER, RIGHT) ASSEMBLY



☛ : New repair part

No.	Part No.	Description	Remark
134	*3-693-293-01	PLATE(A), LOCK	

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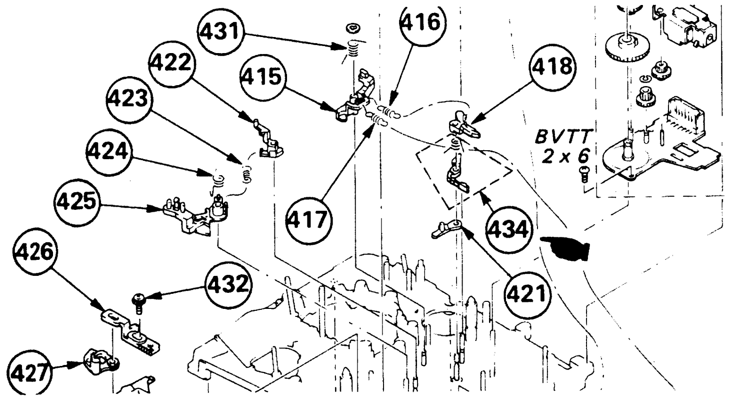
5-9. CHASSIS ASSEMBLY 4



☛ : Changed portion

The two parts of SPRING ⑲ and ARM, RVS ⑳ have become ARM ASSY, RVS.
SPRING and ARM, RVS cannot be supplied as single units.

No.	Part No.	Description	Remark
434	A-7040-016-D	ARM ASSY, RVS	

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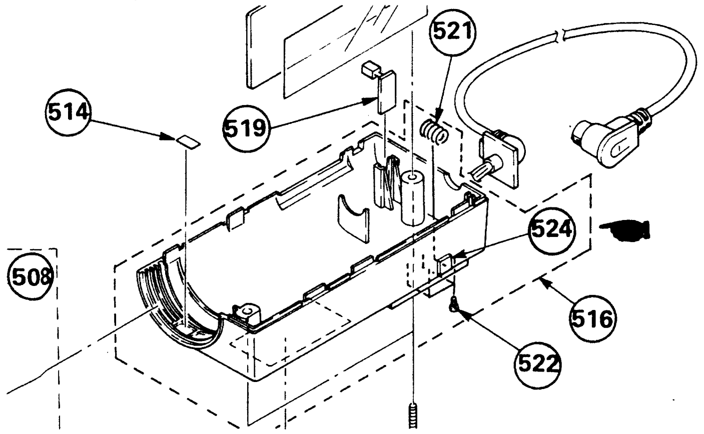
5-11.EVF (VF-206) (AEP, W.G MODEL) ASSEMBLY
EVF (VF-208) (UK MODEL) ASSEMBLY



☛ : New repair part

No.	Part No.	Description	Remark
524	A-7090-144-A	BUTTON KIT, LOCK	

SECTION 6
ELECTRICAL PARTS LIST

Regarding the ME-2, EX-3 and DS-8 boards, refer to the list which contains the changing parts togethar with changing circuit diagrams and printed circuit diagrams.
Regarding AR-2 and MC-8 boards all have been described.

*A-7060-245-A AR-2 BOARD, COMPLETE
****

*3-686-957-01 CASE (MAIN), SHIELD, AR

CAPACITOR

Ref.No	Part No.	Description			Remark
C101	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C102	1-124-224-00	ELECT	47MF	20%	6.3V
C103	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C104	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C105	1-163-075-00	CERAMIC CHIP	0.047MF	10%	25V
C106	1-131-347-00	TANTALUM	1MF	10%	35V
C107	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C108	1-163-077-00	CERAMIC CHIP	0.1MF	10%	50V
C110	1-124-225-00	ELECT	100MF	20%	6.3V
C111	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C112	1-124-225-00	ELECT	100MF	20%	6.3V
C113	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C114	1-131-347-00	TANTALUM	1MF	10%	35V
C115	1-163-075-00	CERAMIC CHIP	0.047MF	10%	25V
C116	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C117	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C118	1-163-075-00	CERAMIC CHIP	0.047MF	10%	25V
C119	1-124-255-00	ELECT	1MF	20%	50V
C120	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C122	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C123	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C124	1-124-222-00	ELECT	22MF	20%	6.3V
C125	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C126	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C128	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C129	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C130	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C131	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C132	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C133	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C134	1-163-077-00	CERAMIC CHIP	0.1MF	10%	50V
C136	1-163-075-00	CERAMIC CHIP	0.047MF	10%	25V
C138	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C139	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C140	1-163-075-00	CERAMIC CHIP	0.047MF	10%	25V
C141	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C142	1-163-033-00	CERAMIC CHIP	0.022MF	10%	25V
C143	1-163-033-00	CERAMIC CHIP	0.022MF	10%	25V
C144	1-163-075-00	CERAMIC CHIP	0.047MF	10%	25V
C145	1-124-233-00	ELECT	10MF	20%	16V
C146	1-163-107-00	CERAMIC CHIP	39PF	5%	50V
C147	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C148	1-163-075-00	CERAMIC CHIP	0.047MF	10%	25V
C149	1-163-075-00	CERAMIC CHIP	0.047MF	10%	25V
C401	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V
C402	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C403	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C404	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C405	1-163-033-00	CERAMIC CHIP	0.022MF	10%	25V
C406	1-163-257-00	CERAMIC CHIP	180PF	5%	50V
C407	1-163-083-00	TANTAL	0.47MF	20%	25V
C408	1-163-145-00	CERAMIC CHIP	0.0015MF	5%	50V
C409	1-163-257-00	CERAMIC CHIP	180PF	5%	50V
C410	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C411	1-163-014-00	CERAMIC CHIP	0.0027MF	10%	50V
C412	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C413	1-163-005-00	CERAMIC CHIP	470PF	10%	50V
C414	1-124-225-00	ELECT	100MF	20%	6.3V
C415	1-124-225 00	ELECT	100MF	20%	6.3V
C416	1-124-233-00	ELECT	10MF	20%	16V
C417	1-124-257-00	ELECT	2.2MF	20%	50V
C418	1-163-005-00	CERAMIC CHIP	470PF	10%	50V
C419	1-124-225-00	ELECT	100MF	20%	6.3V
C420	1-124-233-00	ELECT	10MF	20%	16V
C421	1-163-088-00	CERAMIC CHIP	5PF	0.25PF	50V
C422	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C423	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C424	1-163-079-00	CERAMIC CHIP	0.039MF	10%	25V
C425	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C426	1-163-020-00	CERAMIC CHIP	0.0082MF	10%	50V

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
C427	1-124-255-00	ELECT	1MF	20%	50V
C428	1-124-233-00	ELECT	10MF	20%	16V
C429	1-124-233-00	ELECT	10MF	20%	16V
C430	1-123-618-00	ELECT	22MF	20%	6.3V
C431	1-123-612-00	ELECT	2.2MF	20%	50V
C432	1-124-253-00	ELECT	0.47MF	20%	50V
C433	1-123-661-00	ELECT	100MF	20%	6.3V
C434	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C436	1-123-661-00	ELECT	100MF	20%	6.3V
C437	1-123-610-00	ELECT	0.47MF	20%	50V
C438	1-163-257-00	CERAMIC CHIP	180PF	5%	50V
C439	1-163-014-00	CERAMIC CHIP	0.0027MF	10%	50V
C441	1-124-233-00	ELECT	10MF	20%	16V
C442	1-163-117-00	CERAMIC CHIP	100PF	5%	50V

CONNECTOR

Ref.No	Part No.	Description
CN007	1-564-098-21	CONNECTOR, BOARD TO BOARD
CN008	1-564-098-21	CONNECTOR, BOARD TO BOARD
CN009	1-564-098-21	CONNECTOR, BOARD TO BOARD
CN111	*1-564-016-00	PIN, CONNECTOR 6P
CN112	*1-564-003-00	PIN, CONNECTOR 4P
CN113	*1-564-014-00	PIN, CONNECTOR 4P
CN114	*1-564-012-00	PIN, CONNECTOR 2P

DIODE

Ref.No	Part No.	Description
D101	8-719-101-23	DIODE 1SS123

FILTER

Ref.No	Part No.	Description
FL401	1-235-398-11	BPF 1.5MHZ

IC

Ref.No	Part No.	Description
IC101	8-752-003-40	IC CX20034
IC401	8-752-003-73	IC CX20037-2

COIL

Ref.No	Part No.	Description
L101	1-408-970-21	MICRO INDUCTOR 10UH
L102	1-408-984-21	MICRO INDUCTOR 150UH
L103	1-407-161-XX	MICRO INDUCTOR 22UH
L104	1-407-161-XX	MICRO INDUCTOR 22UH
L105	1-407-161-XX	MICRO INDUCTOR 22UH
L106	1-408-966-21	MICRO INDUCTOR 4.7UH
L107	1-407-177-XX	MICRO INDUCTOR 470UH
L108	1-407-161-XX	MICRO INDUCTOR 22UH
L109	1-407-172-XX	MICRO INDUCTOR 180UH
L111	1-407-160-XX	MICRO INDUCTOR 18UH
L401	1-408-948-00	MICRO INDUCTOR 220UH

Ref.No	Part No.	Description				Remark

VARIABLE COIL

Ref.No	Part No.	Description
LV101	1-459-548-11	COIL, VARIABLE 330UH

TRANSISTOR

Ref.No	Part No.	Description
Q101	8-729-100-66	TRANSISTOR 2SC1623
Q102	8-729-901-03	TRANSISTOR DTC144WK
Q103	8-729-901-03	TRANSISTOR DTC144WK
Q104	8-729-271-23	TRANSISTOR 2SC2712
Q105	8-729-100-66	TRANSISTOR 2SC1623
Q106	8-729-100-66	TRANSISTOR 2SC1623
Q401	8-729-100-66	TRANSISTOR 2SC1623
Q404	8-729-100-66	TRANSISTOR 2SC1623
Q405	8-729-900-99	TRANSISTOR DTA144WK
Q407	8-729-100-66	TRANSISTOR 2SC1623
Q408	8-729-100-76	TRANSISTOR 2SA812

RESISTOR

Ref.No	Part No.	Description			
R101	1-216-089-00	METAL CHIP	47K	5%	1/10W
R102	1-216-083-00	METAL CHIP	27K	5%	1/10W
R103	1-216-081-00	METAL CHIP	22K	5%	1/10W
R104	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R105	1-216-083-00	METAL CHIP	27K	5%	1/10W
R106	1-216-083-00	METAL CHIP	27K	5%	1/10W
R107	1-216-083-00	METAL CHIP	27K	5%	1/10W
R108	1-216-083-00	METAL CHIP	27K	5%	1/10W
R109	1-216-089-00	METAL CHIP	47K	5%	1/10W
R110	1-216-083-00	METAL CHIP	27K	5%	1/10W
R111	1-216-081-00	METAL CHIP	22K	5%	1/10W
R112	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R113	1-216-081-00	METAL CHIP	22K	5%	1/10W
R114	1-216-081-00	METAL CHIP	22K	5%	1/10W
R115	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R116	1-216-043-00	METAL CHIP	560	5%	1/10W
R117	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R118	1-216-097-00	METAL CHIP	100K	5%	1/10W
R119	1-216-045-00	METAL CHIP	680	5%	1/10W
R120	1-216-049-00	METAL CHIP	1K	5%	1/10W
R121	1-216-085-00	METAL CHIP	33K	5%	1/10W
R122	1-216-073-00	METAL CHIP	10K	5%	1/10W
R123	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R124	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R125	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R126	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R127	1-216-081-00	METAL CHIP	22K	5%	1/10W
R128	1-216-081-00	METAL CHIP	22K	5%	1/10W
R129	1-216-081-00	METAL CHIP	22K	5%	1/10W
R130	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R131	1-216-105-00	METAL CHIP	220K	5%	1/10W
R132	1-216-045-00	METAL CHIP	680	5%	1/10W
R133	1-216-043-00	METAL CHIP	560	5%	1/10W
R134	1-216-081-00	METAL CHIP	22K	5%	1/10W
R135	1-216-075-00	METAL CHIP	12K	5%	1/10W

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R136	1-216-041-00	METAL CHIP	470	5%	1/10W	
R137	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R138	1-216-047-00	METAL CHIP	820	5%	1/10W	
R139	1-216-023-00	METAL CHIP	82	5%	1/10W	
R140	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R141	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R142	1-216-037-00	METAL CHIP	330	5%	1/10W	
R143	1-216-025-00	METAL CHIP	100	5%	1/10W	
R144	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R145	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R146	1-216-295-00	METAL CHIP	0	5%	1/10W	
R151	1-216-295-00	METAL CHIP	0	5%	1/10W	
R401	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R402	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R403	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R404	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R405	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R406	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R407	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R408	1-216-060-00	METAL CHIP	3K	5%	1/10W	
R409	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R410	1-216-047-00	METAL CHIP	820	5%	1/10W	
R411	1-216-047-00	METAL CHIP	820	5%	1/10W	
R414	1-216-009-00	METAL CHIP	22	5%	1/10W	
R415	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R416	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R417	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R418	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R419	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R420	1-216-045-00	METAL CHIP	680	5%	1/10W	
R421	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R422	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R423	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R424	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R425	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R426	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R427	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R428	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R431	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R432	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R434	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R435	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R437	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R438	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R439	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R440	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R441	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R442	1-216-041-00	METAL CHIP	470	5%	1/10W	
R444	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R445	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R446	1-216-023-00	METAL CHIP	82	5%	1/10W	
R447	1-216-043-00	METAL CHIP	560	5%	1/10W	
R448	1-216-037-00	METAL CHIP	330	5%	1/10W	
R449	1-216-041-00	METAL CHIP	470	5%	1/10W	

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV101	1-230-523-11	RES, ADJ, METAL GLAZE 10K	
RV102	1-230-522-11	RES, ADJ, METAL GLAZE 4.7K	
RV103	1-230-524-11	RES, ADJ, METAL GLAZE 22K	
RV105	1-230-523-11	RES, ADJ, METAL GLAZE 10K	
RV106	1-230-522-11	RES, ADJ, METAL GLAZE 4.7K	
RV401	1-230-524-11	RES, ADJ, METAL GLAZE 22K	
RV402	1-230-523-11	RES, ADJ, METAL GLAZE 10K	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description		Remark
	*A-7060-243-A	MC-8 BOARD, COMPLETE ********************		
	2-279-715-21	RIVET, NYLON		

CAPACITOR

C502	1-124-233-00	ELECT 10MF	20%	16V
C505	1-124-234-00	ELECT 22MF	20%	10V
C506	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C507	1-163-020-00	CERAMIC CHIP 0.0082MF	10%	50V
C508	1-124-257-00	ELECT 2.2MF	20%	35V
C509	1-163-133-00	CERAMIC CHIP 470PF	5%	50V
C510	1-124-268-00	ELECT 0.22MF	20%	50V
C512	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
C513	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
C514	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C515	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C516	1-124-287-00	ELECT 10MF	20%	10V
C518	1-163-075-00	CERAMIC CHIP 0.047MF	10%	25V
C519	1-124-275-00	ELECT 2.2MF	20%	35V
C601	1-163-105-00	CERAMIC CHIP 33PF	5%	50V
C602	1-163-105-00	CERAMIC CHIP 33PF	5%	50V
C603	1-124-233-00	ELECT 10MF	20%	16V
C604	1-124-222-00	ELECT 22MF	20%	6.3V
C605	1-124-234-00	ELECT 22MF	20%	16V
C606	1-163-127-00	CERAMIC CHIP 270PF	5%	50V
C607	1-124-233-00	ELECT 10MF	20%	16V
C608	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V
C610	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C611	1-163-064-00	CERAMIC CHIP 0.027MF	10%	50V
C614	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V

CONNECTOR

CN501	*1-564-013-00	PIN, CONNECTOR 3P
CN502	*1-564-022-00	PIN, CONNECTOR 12P
CN503	*1-564-028-00	PIN, CONNECTOR 3P
CN505	*1-564-012-00	PIN, CONNECTOR 2P
CN506	*1-562-583-11	CONNECTOR (FPC & FC)
CN507	*1-564-014-00	PIN, CONNECTOR 4P
CN508	*1-564-014-00	PIN, CONNECTOR 4P

DIODE

D501	8-719-101-23	DIODE 1SS123
D601	8-719-200-27	DIODE E10DS2
D602	8-719-200-27	DIODE E10DS2
D603	8-719-100-05	DIODE 1S2837
D604	8-719-100-03	DIODE 1S2835
D605	8-719-914-11	DIODE HZ4ALL
D606	8-719-100-05	DIODE 1S2837

Ref.No	Part No.	Description	Remark

IC

IC501	8-759-102-29	IC CX20115
IC502	8-752-003-50	IC CX20035
IC601	8-759-922-27	IC MB88505-342M
IC602	8-759-201-80	IC TC4526BF

COIL

L501	1-407-165-XX	MICRO INDUCTOR 47UH
L601	1-410-125-11	COIL, CHOKE 100UH
L602	1-408-987-21	MICRO INDUCTOR 330UH

IC LINK

PS601⚠	1-532-685-11	LINK, IC (ICP-N20)
PS602⚠	1-532-637-21	LINK, IC (ICP-F25)

TRANSISTOR

Q502	8-729-100-66	TRANSISTOR 2SC1623
Q503	8-729-901-04	TRANSISTOR DTA114EK
Q504	8-729-100-66	TRANSISTOR 2SC1623
Q505	8-729-100-76	TRANSISTOR 2SA812
Q506	8-729-100-66	TRANSISTOR 2SC1623
Q507	8-729-100-76	TRANSISTOR 2SA812
Q508	8-729-100-76	TRANSISTOR 2SA812
Q509	8-729-100-66	TRANSISTOR 2SC1623
Q510	8-729-901-06	TRANSISTOR DTA144EK
Q511	8-729-901-01	TRANSISTOR DTC144EK
Q512	8-729-901-06	TRANSISTOR DTA144EK
Q513	8-729-901-01	TRANSISTOR DTC144EK
Q514	8-729-901-01	TRANSISTOR DTC144EK
Q515	8-729-901-01	TRANSISTOR DTC144EK
Q517	8-729-901-01	TRANSISTOR DTC144EK
Q601	8-729-900-98	TRANSISTOR DTC143TK
Q602	8-729-900-98	TRANSISTOR DTC143TK
Q603	8-729-901-06	TRANSISTOR DTA144EK
Q604	8-729-901-06	TRANSISTOR DTA144EK
Q605	8-729-901-06	TRANSISTOR DTA144EK
Q606	8-729-900-98	TRANSISTOR DTC143TK
Q607	8-729-901-04	TRANSISTOR DTA114EK
Q609	8-729-900-98	TRANSISTOR DTC143TK
Q610	8-729-900-98	TRANSISTOR DTC143TK
Q611	8-729-901-01	TRANSISTOR DTC144EK
Q612	8-729-901-01	TRANSISTOR DTC144EK
Q613	8-729-100-66	TRANSISTOR 2SC1623
Q614	8-729-100-66	TRANSISTOR 2SC1623
Q615	8-729-901-05	TRANSISTOR DTA124EK
Q616	8-729-900-53	TRANSISTOR DTC114EK
Q617	8-729-901-05	TRANSISTOR DTA124EK
Q618	8-729-199-92	TRANSISTOR 2SD999
Q619	8-729-202-86	TRANSISTOR 2SA1242LB
Q620	8-729-100-66	TRANSISTOR 2SC1623
Q621	8-729-100-76	TRANSISTOR 2SA812

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
Q625	8-729-100-66	TRANSISTOR 2SC1623	
Q627	8-729-901-01	TRANSISTOR DTC144EK	
Q630	8-729-901-06	TRANSISTOR DTA144EK	

RESISTOR

Ref.No	Part No.	Description				Remark
R502	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R503	1-216-295-00	METAL CHIP	0	5%	1/10W	
R504	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R505	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R507	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R508	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R509	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R510	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R511	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R512	1-216-103-00	METAL CHIP	180K	5%	1/10W	
R513	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R514	1-216-099-00	METAL CHIP	120K	5%	1/10W	
R515	1-216-095-00	METAL CHIP	82K	5%	1/10W	
R516	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R517	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R518	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R519	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R520	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R521	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R522	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R523	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R524	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R525	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R526	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R527	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R528	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R529	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R530	1-216-295-00	METAL CHIP	0	5%	1/10W	
R531	1-216-295-00	METAL CHIP	0	5%	1/10W	
R588	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R601	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R602	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R603	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R604	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R605	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R606	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R607	1-216-162-00	METAL CHIP	33	5%	1/8W	
R608	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R609	1-216-170-00	METAL CHIP	68	5%	1/8W	
R610	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R611	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R612	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R613	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R614	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R615	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R616	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R617	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R618	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R619	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R620	1-216-087-00	METAL CHIP	39K	5%	1/10W	
R621	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R622	1-216-087-00	METAL CHIP	39K	5%	1/10W	
R623	1-216-190-00	METAL CHIP	470	5%	1/8W	
R624	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R625	1-216-041-00	METAL CHIP	470	5%	1/10W	
R626	1-216-045-00	METAL CHIP	680	5%	1/10W	
R627	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R628	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R629	⚠.1-216-194-91	METAL CHIP	680	5%	1/8W	
R632	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R640	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R641	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R642	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R643	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R644	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R645	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R646	⚠.1-216-194-91	METAL CHIP	680	5%	1/8W	
R647	⚠.1-216-194-91	METAL CHIP	680	5%	1/8W	
R650	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R651	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R655	1-216-033-00	METAL CHIP	220	5%	1/10W	
R657	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV601	1-230-520-11	RES, ADJ, METAL GLAZE 1K	

CRYSTAL

Ref.No	Part No.	Description	Remark
X601	1-567-346-11	OSCILLATOR, CERAMIC 6MHZ	

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